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ABSTRACT

A study investigated effects of on-the-job or "hands-on" vocational training relative to standard classroom vocational instruction on subsequent employment, earnings, wages, and job satisfaction. The data used were from the National Longitudinal Study of the High School Class of 1972 and five follow-up surveys of this population. An analysis of the data using a staged approach indicated that a full-scale study could be performed of the relative and absolute net effects of various forms of vocational training relative to a comparison group of individuals who engaged only in postsecondary classroom vocational education. These analyses indicated that apprentices earned more than those in the comparison group; the differences grew both absolutely and relatively over time. The average hourly wage and average hours of apprentices were greater than those of in the comparison group. In all years, the proportion of apprentices who were satisfied with their jobs exceeded that of the comparison group. A separate analysis was made of individuals who received employer provided on-the-job training relative to the same comparison group. Findings offered some support for the hypotheses that those who received on-the-job training worked more than apprentices in the early years and had higher earnings in the earlier years. (The text includes 45 tables. Appendixes provide weighted tables and detailed tables.) (YLB)

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ANALYSIS OF APPRENTICESHIP TRAINING FROM THE NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

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1. DEVELOPMENT OF THE SAMPLE

1.1 Introduction

In August 1987 Westat staff met with officials of the National Training Program of the International Union of Operating Engineers (IUOE) to consider the possibility of undertaking a study of the effects of various forms of on-the-job or "hands-on" vocational training (apprenticeship, on-the-job training, etc.) relative to standard classroom vocational instruction on subsequent employment, earnings, and job satisfaction.

After some exploration, we found that the National Longitudinal Study (NLS) of the High School Class of 1972 contained information on later education, training, employment and earnings of the senior class of 1972. Further, four followup surveys had been undertaken covering the period from October 1973 through October 1979. Finally, data from a fifth followup of this cohort through February 1986 was to become available in November of 1987. At this point, the class of 1972 would average 32 years of age.

It was decided that we would undertake an analysis of the data using a staged approach. In the first stage we would obtain the NLS data and documentation from the National Center for Education Statistics and carry out a preliminary analysis using data through the fourth followup (October 1979). The purpose of this preliminary analysis would be to determine if there were a sufficient number of individuals in the various training categories to make a continued analysis of this data set worthwhile. The analysis of the first four waves of the followup of the class of 1972 yielded a total sample of 8,072 individuals of interest (including those who might be used for the construction of a Comparison group). This total included 508 individuals who indicated that they had participated in a formal registered apprenticeship program at some point during the 1972-79 period. On the basis of these results, it was decided to pursue the analysis to a second stage.

The second stage involved an analysis of the 1986 (wave 5) followup, merging the data from the earlier waves with that of the fifth followup in order to determine the number of individuals of interest who could be identified as having responded in 1986.

If, on the basis of the results of the stage two analysis, it was determined that a complete study could be performed, we would design and carry out a full scale study of the relative and absolute net effects of various forms of vocational training relative to a Comparison group composed of individuals who engaged only in post-secondary classroom vocational education.

This report describes the progress of that analysis, including a separate analysis of individuals who received employer provided on-the-job training relative to the same Comparison group used for the analysis of subsequent experience of those who participated in apprenticeship training.

The following section describes the data base used for the study and the derivation of the eventual analysis groups.

1.2 The National Longitudinal Study Sample of the Class of 1972[1]

The National Longitudinal Study of the High School Class of 1972 was initiated in the Spring of 1972. The sample design called for a deeply stratified national probability sample of 1,200 schools with 18 seniors per school, school size permitting. A total of 19,001 students from 1,061 high schools provided base-year data on up to three data collection forms: a Test Battery, a School Record Information Form, and a Student Questionnaire. The Student Questionnaire was completed by 16, 683 seniors.

The first followup survey was conducted from October 1973 to April 1974. Added to the base-year sample were 4,450 1972 high school seniors from 257 additional schools that were unable to participate earlier. First followup forms were mailed to 22,652 students, and obtained from 21,350 by mail, telephone interview, or personal interview. Sample members were asked where they were in October 1973 and what they were doing with regard to work, education, and/or training. Similar information was requested for the same time period in 1972 to facilitate tracing of progress since leaving high school and to define the factors that might have affected that progress. Retrospective information on some base-year variables was requested from those added

[1]This section is based on the National Longitudinal Study: Data File Users Manual, Vol. 1, Chap. 1.

to the sample at this time. The first followup sample retention rate among the 16,683 seniors completing the Base-Year Questionnaire was 93.7 percent.

The second followup survey was conducted from October 1974 to April 1975, with forms mailed to 22,364 sample members. Information requested was similar to that of the first followup, but for the new time point; however, some new questions regarding work and education were included. Concurrently with the second followup, a special retrospective survey was conducted (using an Activity State Questionnaire) to obtain key activity status information about prior time points from those who had not provided this information previously. Second Followup Questionnaires were obtained from 20,872 sample members by mail, telephone interview, or personal interview. Among the 21,350 persons who completed a First Followup Questionnaire, sample retention rate for the second followup was 94.6 percent.

The third followup survey was conducted in the Fall of 1976. Third followup interviews were conducted by mail, telephone or in-person interviews with 20,092 of the 21,807 sample members with whom contact was attempted. The third followup sample retention of second followup respondents was 93.9 percent. Information was collected on respondent status in October 1976 as well as October of the intervening year (1975) in addition to summaries of experience since the earlier followup.

The fourth followup survey was conducted from October 1979 to May 1980, with Fourth Followup Questionnaires sent to 20,862 sample members and obtained from 18,630 by mail, personal, or telephone interview. Some 5,548 of these individuals also completed a Supplemental Questionnaire in order to collect key work and educational history data that had been requested but not obtained in prior followups. Additionally, a subgroup of 2,648 sample members were retested during the fourth followup on a subset of the base-year test battery. The Fourth Followup Questionnaire requested summaries of educational and occupational activities and experiences since the previous followup, including status at the time points of October 1977, 1978, and 1979. Given the time since high school graduation, some additional emphasis was placed on other activities (e.g., family formation, political participation) in the fourth followup instrument. Fourth followup sample retention among the third followup respondents was 90.8 percent, and at the conclusion of fourth followup activities a total of 12,980 individuals had provided information on all questionnaires (base year and all four followup studies), representing 78 percent of the base year respondents. As a result of the various retrospective data collection efforts, the number of

individuals with some key data elements for all time points is 16,450, 73 percent of the cases on file.

In 1986, the fifth followup of the class of 1972 was combined with the third followup of High School and Beyond sample of sophomores and seniors begun in 1980. Followup was attempted for a subsample of 14,489 respondents to the fourth followup of the class of 1972. This followup inquired about education and training received from October 1979 through October 1986 as well as the employment and family formation in the interim. Specific attention was given to earnings and employment in the last two years of this interval (1985 and 1985). Responses were received from 12,841 of the fourth wave respondents for a wave five response rate of 89 percent. This is quite good for a followup of individuals who had last been interviewed seven years prior.

1.3 The Preliminary Analysis Sample

Only some of the 22,652 cases on the Wave 1 through Wave 4 NLS file were of interest for this analysis. All individuals who did not respond to the fourth wave interview were deleted, as were all individuals who, at the time of the fourth wave (1979) had a college or advanced degree or whose primary educational activity was the pursuit of a four year academic or graduate or professional degree. However, because individuals in apprenticeship or other forms of training also take vocational or academic course work, it was not desirable to delete all individuals enrolled in academic programs.

After the deletions and other adjustments to the sample discussed above, the remaining 8,072 cases were distributed as follows:

Type of Training	Frequency	Percent
Apprenticeship	508	6
Armed Forces	656	8
Employer, OJT	4,012	50
Employer, not OJT	280	3
E&T Program	238	3
Other Program	221	3
Personal	404	5
Other	1,753	22
	8,072	100

As defined, Apprenticeship is a formal apprenticeship program. The "E&T Program" category includes CETA, WIN, MDTA, and NYC. The "Other Program" includes cooperative education, internships, etc. as well as other, unspecified training programs. The category "Personal' includes non-credit courses, personal enrichment courses, etc.

The large number of individuals in the data set who received no training (the "other" category) is the result of the deletions which left in the sample a large number of individuals who had some academic coursework or vocational training.

The 8,072 individuals identified in the first four sample waves were merged forward into the 1986 followup (wave 5). Within that group 63 individuals not identified as participants in apprenticeship programs in the earlier waves indicated in the 1986 followup that they had participated in an apprenticeship program since 1979. Therefore, the number of potential Apprentices increased from 508 to 571 across all the waves. Another 33 who had indicated that they had participated in an apprenticeship in one of the prior waves also indicated that they had participated in an apprenticeship after 1979.

Consideration was also given to merging backward those individuals in the fifth wave who indicated that they participated in an apprenticeship program since 1979. Of the 170 who did, almost 100 were already included in the data set. Further, in the 1986 followup, questions concerning apprenticeship were asked in two places. In the section on employment, participation in apprenticeship was asked in relation to the respondent's most recent job. A total of 222 individuals responded positively to this question (FI15BA). Later, in the section concerning other training, the question concerning apprenticeship comparable to that in the previous waves was asked (FI38AA) and 170 individuals responded in the affirmative. An analysis of the relation between these two questions indicated that roughly half of those who indicated that they participated in an apprenticeship program since 1979. (Given the skip patterns in the questionnaire, a nonpositive response in either place results in the loss of additional information.) However, only half those who indicated that they had participated in an apprenticeship program since 1979 also indicated that they had participated in an apprenticeship program on their most recent job. Therefore, given the apparent confusion generated by the nature of the questionnaire, it was decided not to merge backward into the first four waves. We estimate that there are 65 individuals in the wave five sample who indicated that they had participated in an apprenticeship program since 1979 who were not included in the wave 1-4 sample and that half of these

individuals were still in training as of 1986. Therefore, merging backwards from the wave 5 sample could yield between 32 and 65 additional sample members and perhaps more if participation in an apprenticeship as part of the most recent job were included. Therefore, the decision was made to treat the fifth followup as purely a followup on the previous sample. The characteristics of that sample are described below.

1.4 Characteristics of the Sample

As noted above, the fifth followup was conducted for a subsample of those individuals who had either responded in the four previous waves or for whom a response was obtained in the fourth followup and certain critical information obtained for all previous time periods. The total sample for the fifth followup was 14,489 individuals. The 8,072 individuals of interest identified in the previous four waves were distributed as indicated in Table 1.

Thirty-four percent of the sample of 8,072 retained from the earlier waves were not sampled in wave five. Of the 571 potential participants in apprenticeship programs, 30 percent (171) were not sampled in wave five. Of the 400 included in the sample, 38 did not respond, yielding a response rate of 90.5 percent. The resulting surviving sample through all five waves is 5,071 individuals in all categories of training. A total of 362 participated in an apprenticeship program at some time.

Sex

Table 2 indicates the composition of the sample by sex. The distribution by sex varies substantially across the training categories with apprenticeship and the Armed Forces more than four-fifths male, the private employer categories roughly 60 percent male and the government and other programs more than three-fifths female. The overall distribution of the sample is 46 percent male and 54 percent female, primarily because of the inclusion of the government employment and training category.

TABLE 1. DISTRIBUTION OF SAMPLE AFTER WAVE 5 FOLLOWUP BY TYPE OF TRAINING

FREQUENCY COLUMN PERCENT	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
NOT SAMPLED	171	245	1319	85	64	81	121	620	2706
	29.95	38.22	30.87	27.78	19.69	40.30	34.47	44.16	33.52
NONRESPONSE	38	64	253	20	28	11	30	122	566
	6.65	9.98	5.92	6.54	8.62	5.47	8.55	8.69	7.01
RESPONDENT	362	332	2701	201	233	109	200	662	4800
	63.40	51.79	63.21	65.69	71.69	54.23	56.98	47.15	59.46
TOTAL	571	641	4273	306	325	201	351	1404	8072
	7.07	7.94	52.94	3.79	4.03	2.49	4.35	17.39	100.00

Table 2. Sex Composition of the Sample by Type of Training

Frequency Column Percent	Male	Female	Total
Apprenticeship	318 87.8	44 12.1	362 7.5
Armed Forces	283 85.2	49 14.8	332 6.9
Employer, OJT	1,103 40.8	1,597 59.1	2,700 56.3
Employer, Not OJT	85 42.3	116 57.7	201 4.2
E&T Program	70 30.0	163 70.0	233 4.8
Other Program	40 36.7	69 63.3	109 2.3
Personal	62 31.0	137 68.5	199 4.2
Other	248 37.5	414 62.5	662 13.8
TOTAL	2,209 46.0	2,589 53.9	4,798 100

Missing 2

Two aspects of the breakdown by sex should be kept in mind. First, the differential distribution could present a problem for matching to develop a Comparison group. Second, the differential distribution by sex among the training categories would have to be taken into account when examining earnings differences which are discussed later in this paper.

Race

Table 3 indicates the racial composition of the sample. With the exception of the Employment and Training programs in which 31 percent of the participants are Black, the racial composition of the various training program categories are quite comparable, with approximately 12 percent Black and 11 percent other racial and ethnic categories. Apprenticeship program participants are 11 percent Black, 12 percent Other and 77 percent White.

Table 3. Racial Composition of the Sample by Type of Training

Frequency Row Percent	White	Black	Other	Total
Apprenticeship	279 77.1	41 11.3	42 11.6	362 7.5
Armed Forces	244 73.5	47 14.2	41 12.3	332 6.9
Employer, OJT	2,102 77.8	305 11.3	294 10.9	2,701 56.3
Employer, Not OJT	153 76.1	23 11.4	25 12.4	201 4.2
E&T Program	136 58.4	72 30.9	25 10.7	233
Other Program	90 82.6	7 6.4	12 11.0	109 2.3
Personal	170 85.0	11 5.5	19 9.5	200 4.2
Other	524 79.2	67 10.1	71 10.7	662 13.8
TOTAL	3,698 77.0	573 11.9	529 11.0	4,800 100

Marital Status

As of the fifth followup in February of 1986, 68 percent of the sample individuals were married (72 percent of the Apprentices) and 13 percent were single (11 percent of the Apprentices). With the exception of the participants in Employment and Training programs, the distribution of marital status is fairly consistent across the training categories (see Table 4).

1.5 Background

One of the issues to be dealt with in conducting an analysis of the outcomes from "hands-on" training has to do with whether the background characteristics of the trainees are similar to those of other individuals who might be used to form a Comparison group. In the current case, these individuals are those in the "Other" category. If a difference in an outcome variable is observed (e.g., the average earnings of the trainees are higher in 1986 than those of the Comparison group), it is possible that this difference is the result of differences in other background variables rather than an effect of the training. For example, the trainees, by participating in the training, may have demonstrated that they are more motivated or have better academic backgrounds. This data set is unusual in that it contains many of these background variables. Therefore, in this section, some of these variables are explored.

Type of High School Program

Table 5 indicates the type of high school program completed by those in the various training categories. Although not selected on these variables, the groups are already quite comparable. Slightly over two-fifths completed a general high school program, a little more than a quarter had taken an academic program, and slightly under a third had graduated from a vocational - technical program.

TABLE 4. MARITAL STATUS IN 1986 BY TYPE OF TRAINING

FREQUENCY COL.PCT.	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
SINGLE	39	46	340	25	47	16	29	102	644
	10.77	14.07	12.65	12.44	20.26	14.81	14.57	15.41	13.48
MARRIED	261	229	1843	142	119	73	136	460	3263
	72.10	70.03	68.59	70.65	51.29	67.59	68.34	69.49	68.29
DIVORCED WIDOWED SEPARATED	45	38	372	31	52	14	21	67	640
	12.43	11.62	13.84	15.42	22.41	12.96	10.55	10.12	13.39
LIVING WITH SOMEONE	16	13	119	3	13	4	12	27	207
	4.42	3.98	4.43	1.49	5.60	3.70	6.03	4.08	4.33
UNKNOWN STATUS	1	1	13	0	1	1	1	6	24
	0.28	0.31	0.48	0.00	0.43	0.93	0.50	0.91	0.50
TOTAL	362	327	2687	201	232	108	199	662	4778
	7.58	6.84	56.24	4.21	4.86	2.26	4.16	13.86	100.00

TABLE 5. HIGH SCHOOL PROGRAM BY TYPE OF TRAINING

FREQUENCY COLUMN PERCENT	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
GENERAL	159	151	1113	76	83	49	71	276	1978
	43.92	45.48	41.21	37.81	35.62	44.95	35.50	41.69	41.21
ACADEMIC	103	90	671	62	58	22	57	208	1271
	28.45	27.11	24.84	30.85	24.89	20.18	28.50	31.42	26.48
VO-TECH	100	90	914	62	91	38	71	178	1544
	27.62	27.11	33.84	30.85	39.06	34.86	35.50	26.89	32.17
LEGITSKIP	0	1	3	1	1	0	1	0	7
	0.00	0.30	0.11	0.50	0.43	0.00	0.50	0.00	0.15
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

The overall distribution of high school programs is affected by the fact that the sample individuals were "selected" into the sample through the exclusion of respondents who were pursuing a four year college degree or masters or professional degree. Therefore, it is to be expected that this sample would have higher proportions of general and vocational - technical programs than the general population. However, for current purposes it is the comparability among the groups that is of interest. This comparability is encouraging from the perspective of matching individuals to form a Comparison group.

Socioeconomic Status

Another background variable that is often mentioned, although rarely measured, in connection with developing a Comparison group is the socioeconomic status of the household in which the individual grew up. Table 6 indicates the distribution of socioeconomic status of the parental household for all sample members by type of training.

Although not as marked as for the type of high school program, with a few exceptions, the distribution of socioeconomic status of the various training groups is fairly comparable. Slightly more than half the sample come from homes with medium socioeconomic status. Slightly over 30 percent are from households with low socioeconomic status and fifteen percent are from households with high socioeconomic status. Lower than average proportions of Apprentices (24 percent), individuals who have participated in personal noncredit courses and the "Other" category have low economic status while a higher proportion of participants in Employment and Training programs come from households with low socioeconomic status (49 percent). Slightly more Apprentices (17 percent) come from high socioeconomic status households while lower proportions of individuals in the Armed Forces and Employment and Training programs come from households with high socioeconomic status.

TABLE 6. SOCIOECONOMIC STATUS BY TYPE OF TRAINING

FREQUENCY COL PERCENT	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
LOW	88	105	854	50	114	25	47	192	1475
	24.31	31.63	31.62	24.88	48.93	22.94	23.50	29.00	30.73
MEDIUM	208	182	1428	101	91	63	124	356	2553
	57.46	54.82	52.87	50.25	39.06	57.80	62.00	53.78	53.19
HIGH	62	35	389	45	23	18	25	110	707
	17.13	10.54	14.40	22.39	9.87	16.51	12.50	16.62	14.73
UNCLASSIFIED	4	10	30	5	5	3	4	4	65
	1.10	3.01	1.11	2.49	2.15	2.75	2.00	0.60	1.35
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

Parental Education

Parental education levels, particularly of the mother, are often cited in the sociology literature as important predictors of eventual educational level and economic status of individuals. As indicated in Table 7, the mothers of half the sample were high school graduates (30 percent) or did not finish high school (20 percent). Five percent had some college education and a total of 4 percent had a college degree or education beyond college.

A slightly higher proportion of the fathers of the sample members did not finish high school (24 percent) but a lower proportion (22 percent) had high school graduation as their highest level of educational attainment (see Table 8). Three percent of the fathers had some business or trade school education beyond high school, 7 percent had attended college, another 4 percent were college graduates and 3 percent had taken graduate education beyond college.

Information on the educational attainment of the parents was missing for 9 percent of the sample and legitimately skipped for one-fourth of the sample individuals. Presumably, information on parental education was not collected for this portion of the sample.

1.6 Training

This section provides some information on various aspects of the training received. Included is information on the length of training, whether the individual completed the training, and whether the training was useful on the job, as well as the occupations/fields of training for those in the Apprentice category.

It should be noted that the responses included in the tables are for the last interval (interview wave) in which training was received. Similarly, the responses for completion of training and usefulness of training as well as the occupation of the training are for that same period. This was accomplished by creating a variable (_YEAR) which is a five character bit string indicating if training was received in a given interview wave. For example, an individual who received training only in the first followup wave in October 1973 ("Did you receive any training

TABLE 7. MOTHER'S EDUCATIONAL ATTAINMENT BY TYPE OF TRAINING

FREQUENCY COL PERCENT	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
DOESN'T APPLY	2 0.55	5 1.51	53 1.96	4 1.99	6 2.58	2 1.83	2 1.00	6 0.91	80 1.67
NOT FINISH H.S.	64 17.68	82 24.70	555 20.55	32 15.92	48 20.60	20 18.35	46 23.00	125 18.88	972 20.25
H.S. GRAD	109 30.11	94 28.31	811 30.03	60 29.85	55 23.61	32 29.36	71 35.50	219 33.08	1451 30.23
ADULT ED. PROGRAM	8 2.21	5 1.51	54 2.00	5 2.49	4 1.72	0 0.00	2 1.00	6 0.91	84 1.75
BUSINESS TRADE SCHOOL	7 1.93	12 3.61	106 3.92	8 3.98	5 2.15	5 4.59	5 2.50	26 3.93	174 3.63
SOME COLLEGE	13 3.59	8 2.41	145 5.37	14 6.97	10 4.29	6 5.50	9 4.50	36 5.44	241 5.02
COLLEGE GRAD	9 2.49	11 3.31	57 2.11	6 2.99	6 2.58	4 3.67	2 1.00	22 3.32	117 2.44
SOME GRAD PROF. SCHL	8 2.21	0 0.00	27 1.00	2 1.00	1 0.43	2 1.83	4 2.00	3 0.45	47 0.98
GRAD PROF. DEGREE	8 2.21	4 1.20	16 0.59	0 0.00	4 1.72	1 0.92	0 0.00	9 1.36	42 0.88
MISSING	42 11.60	21 6.33	210 7.77	23 11.44	26 11.16	10 9.17	17 8.50	59 8.91	408 8.50
LEGITSKIP	92 25.41	90 27.11	667 24.69	47 23.38	68 29.18	27 24.77	42 21.00	151 22.81	1184 24.67
TOTAL	362 7.54	332 6.92	2701 56.27	201 4.19	233 4.85	109 2.27	200 4.17	662 13.79	4800 100.00

TABLE 8. FATHER'S EDUCATIONAL ATTAINMENT BY TYPE OF TRAINING

FREQUENCY COL PERCENT	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
DOESN'T APPLY	0 0.00	7 2.11	67 2.48	4 1.99	4 1.72	7 6.42	2 1.00	12 1.81	103 2.15
NOT FINISH H.S.	80 22.10	94 28.31	655 24.25	36 17.91	59 25.32	20 18.35	48 24.00	149 22.51	1141 23.77
HS GRAD	81 22.38	67 20.18	582 21.55	52 25.87	41 17.60	24 22.02	50 25.00	172 25.98	1069 22.27
ADULT ED. PROGRAM	2 0.55	6 1.81	29 1.07	3 1.49	3 1.29	1 0.92	0 0.00	9 1.36	53 1.10
BUSINESS TRADE SCHOOL	12 3.31	17 5.12	83 3.07	5 2.49	6 2.58	5 4.59	5 2.50	13 1.96	146 3.04
SOME COLLEGE	24 6.63	15 4.52	180 6.66	12 5.97	14 6.01	9 8.26	13 6.50	46 6.95	313 6.52
COLLEGE GRAD	9 2.49	7 2.11	126 4.66	13 6.47	4 1.72	9 8.26	14 7.00	34 5.14	216 4.50
SOME GRAD PROF. SCHL	7 1.93	6 1.81	28 1.04	3 1.49	5 2.15	0 0.00	6 3.00	2 0.30	57 1.19
GRAD PROF. DEGREE	5 1.38	4 1.20	49 1.81	2 1.00	2 0.86	0 0.00	1 0.50	14 2.11	77 1.60
MISSING	50 13.81	19 5.72	235 8.70	24 11.94	27 11.59	7 6.42	19 9.50	60 9.06	441 9.19
LEGITSKIP	92 25.41	90 27.11	667 24.69	47 23.38	68 29.18	27 24.77	42 21.00	151 22.81	1184 24.67
TOTAL	362 7.54	332 6.92	2701 56.27	201 4.19	233 4.85	109 2.27	200 4.17	662 13.79	4800 100.00

since graduation") will have a value of the variable _YEAR that would be equal to 10000. Similarly, someone who received training only during the period covered by the last interview wave (October 1979 through February 1986) would have a value of 00001.

Length of Training

Table 9 indicates the length of training being taken by type of training program. Different categories of length were used in different waves of interviews. The common categories are less than one month, less than one year, and one year or more. In all cases, the longest category was one year or more.

Sixty-two percent of the Apprentices indicated that their training programs were to last one year or more compared to an average of 17 percent for all groups. The bulk of the training received was more than month but less than one year in length. Individuals could, of course, participate in more than one training program.

Completion of Training

Table 10 indicates the completion status of the training programs. As noted above, the question concerning the completion of training was asked at the same time as the respondent was asked about participation in training. Therefore, the response "still in training" should be taken as a minimum, since the training program could have been completed after the time of the interview, and the proportion "complete" should be taken as a minimum. If a respondent had not been in training in the next wave, the question regarding completion of training would have been skipped. This would particularly be the case for programs with long training periods - such as apprenticeship. In any event, the data set contains a high proportion of program completers - over half the total sample indicated that they had completed the training in which they enrolled/participated.

TABLE 9. 1972 NLS FIFTH FOLLOWUP LENGTH OF TRAINING BY TYPE OF TRAINING

FREQUENCY COL.PCT.	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
LESS THAN	33	47	875	69	55	15	25	0	1119
1 MONTH	9.1	14.2	32.4	34.3	23.6	13.8	12.5	0.00	23.3
1 MONTH OR MORE	83	182	891	54	126	47	124	0	1507
LESS THAN ONE YEAR	22.9	54.8	33	26.9	54.1	43.1	62	0.00	31.4
1 YEAR OR MORE	224	86	391	17	33	24	36	0	811
	61.9	25.9	14.5	8.5	14.2	22	18	0.00	16.9
MISSING	22	17	544	61	19	23	15	662	1363
	6.1	5.1	20.1	30.3	8.2	21.1	7.5	100.00	28.4
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.5	6.9	56.3	4.2	4.8	2.3	4.2	13.8	100

TABLE 10. 1972 NLS FIFTH FOLLOWUP COMPLETION OF TRAINING BY TYPE OF TRAINING

FREQUENCY COL.PCT.	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
COMPLETE	202	250	1727	122	169	49	117	0	2636
	55.8	75.3	63.9	60.7	72.5	45	58.5	0.00	54.9
NOT COMPLETE	44	9	134	8	20	8	23	0	246
	12.2	2.7	5	4	8.6	7.3	11.5	0.00	5.1
STILL IN TRAIN	97	57	302	11	28	29	46	0	570
	26.8	17.2	11.2	5.5	12	26.6	23	0.00	11.9
MISSING	19	16	538	60	16	23	14	662	1348
	5.2	4.8	19.9	29.9	6.9	21.1	7.0	100.0	28.1
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.5	6.9	56.3	4.2	4.8	2.3	4.2	13.8	100

Usefulness of Training

Responses were also collected on whether the training was useful on the respondent's job. The results are presented in Table 11. Not surprisingly, Apprenticeship, Armed Forces, and employer provided on-the-job training (OJT) were most used on the job, with over four-fifths of the respondents indicating they used their training on their job. Similarly, training taken for personal reasons was least useful on the job. Overall, however, almost two-thirds of the respondents indicated that their training was useful in their work.

Occupations of Apprenticeship Training

For those respondents who indicated that they were in an apprenticeship program, Table 12 lists the occupations/fields for which they were training. In four of the five waves, the questionnaire asked the occupation for which the individual was training. In one wave the question asked the Field of Study of the training in which the individual was participating. Both are listed in the table and, in cases which there was a direct correspondence between the two (e.g., Machinist), the two were combined under the occupation description.

The most commonly occurring occupations for Apprentices were Electrician, Carpenter, Plumber and Pipefitter, Machinist, and Sheetmetal Workers and Tinsmiths; each with more than ten respondents reporting that occupation and the sum (113) accounting for almost one-third of the total. While interesting for descriptive purposes, it would be hard to use this information to classify "apprenticeable occupations" for several reasons. First, some occupations are reasonable promotional opportunities for apprenticeable occupations" (e.g., Inspector, Foreman). Second, occupational definitions are often at the same time too broad and too narrow to discern the specific occupation (e.g., Electrical and Electronic Engineers, Managers and Administrators n.e.c.). Third, there is often miscoding - many of those listed as "occupation not reported" were, in fact, codes for which there were no corresponding occupational definitions.

TABLE II. 1972 NLS FIFTH FOLLOWUP USEFULNESS OF TRAINING ON JOB BY THE TYPE OF TRAINING

FREQUENCY COL.PCT.	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
USEFUL	299	272	2221	154	104	67	70	0	3187
	82.6	81.9	82.2	76.6	44.6	61.5	35	0.00	66.4
NOT USEFUL	39	47	372	38	79	35	101	0	711
	10.8	14.2	13.8	18.9	33.9	32.1	50.5	0.00	14.8
MISSING	24	13	108	9	50	7	16	662	902
	6.6	3.9	4.0	4.5	21.5	6.4	8.0	100.0	18.8
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.5	6.9	56.3	4.2	4.8	2.3	4.2	13.8	100

TABLE 12. OCCUPATION OF TRAINING FOR APPRENTICES, BY SEX

Occupations	Male	Female	Total
Electrical and Electronic Engineers	1		1
Industrial Engineers	1		1
Therapist, Health Technologists & Technicians	1		1
Health Technologists & Technicians, n.e.c. Religious workers		1	1
Chemical Technicians	2		2
Electricial & Electronic Engineering Technicians	2		2
Industrial Engineering Technicians	1		1
Embalmers	3		3
Radio Operators		1	1
Athletes and Kindred Workers	1		1
Photographers	2		2
Managers and Administrators, n.e.c.	4		4
Advertising Agents and Salesmen	1		1
Real Estate Agents and Brokers	1		1
Salesmen	3	2	5
Cashiers	1	1	2
Insurance Adjusters, Examiners & Investigators		1	1
Meter Readers, Utilities, Office Machine Operators	1		1
Computer & Peripheral Equipment Operators	1	1	2
Key Punch Operators	1		1
Secreatries, Medical		1	1
Bakers		1	1
Boilermakers	2		2
Brickmasons & Stonemasons	5		5
Cabinetmakers	1		1
Carpenters	26		26
Carpenter Apprentices	1		1
Carpet Installers	1		1
Cement & Concrete Finishers	2		2
Compositors and Typesetters	1		1
Cranemen, Derrickmen, and Hoistmen	1		1
Dental Laboratory Technicians	1		1
Electricians	36	3	39
Electrician Apprentices	1	1	2
Electric Power Linemen & Cablemen	2		2
Excavating, Grading & Rd. Machine Operators; exc. bulldozer	2		2
Floor Layers, exc. Tile Setters	3		3
Foremen, n.e.c.	1		1
Glaziers	1		1
Inspectors, n.e.c.	1		1

TABLE 12. (Continued)

Occupations	Male	Female	Total
Jewelers and Watchmakers	1		1
Machinists	16		16
Air Conditioning, Heating & Refrigeration	3		3
Automobile Mechanics	5		5
Automobile Mechanic Apprentices	1		1
Heavy Equipment Mechanics, incl. Diesel	8		8
Office Machine	1		1
Railroad and Car Shop	4		4
Misc. Mechanics and Repairmen	3		3
Not Specified Mechanics and Repairmen	2		2
Millwrights	3		3
Molders, Metal	1		1
Motion Picture Projectionists	1		1
Opticians, and Lens Grinders and Polishers	1		1
Painters, Construction and Maintenance	4		4
Photoengravers and Lithographers	1	1	2
Plumbers and Pipe Fitters	20	1	21
Plumber and Pipe Fitters Apprentices	1		1
Pressmen and Plate Printers, Printing	3	1	4
Sheetmetal Workers and Tinsmiths	11		11
Sheetmetal Apprentices	1		1
Shipfitters	1		1
Shoe Repairmen	1		1
Stationary Engineers	2		2
Structural Metal Craftsmen	3		3
Telephone Linemen and Splicers	1	1	2
Tool and Die Makers	6		6
Tool and Die Maker Apprentices	1		1
Specified Craft Apprentices, n.e.c.	1	1	2
Asbestos and Insulation Workers	1		1
Cutting Operatives, n.e.c.	1		1
Dry Wall Installers and Lathers	3		3
Furnacemen, Smeltermen, and Pourers	5		5
Mine Operatives, n.e.c.	1		1
Oilers and Greasers, exc. Auto	1		1
Precision Machine Operatives, n.e.c.		1	1
Sailors and Deckhands	1		1
Weavers		1	1
Welders and Flame-Cutters	9		9
Machine Operatives, Misc. Specified	1		1
Machine Operatives, Not Specified	1		1
Not Specified Operatives	1	1	2
Construction Laborers, exc. Carpenters' Helpers	2		2
Cooks, except Private Household	1		1

TABLE 12. (Continued)

Occupations	Male	Female	Total
Cooks, except Private Household	1		1
Attendants, Personal Service, n.e.c.		1	1
Barbers	4		4
Hairdressers and Cosmetologists	1	4	5
Firemen, Fire Protection	1		1
Guards and Watchmen	1		1
Policemen and Detectives	3		3
Military	3		3
Occupation Not Reported	34	6	40
Field of Study			
Agriculture Technologies and Forestry Technology	1		1
Regional, Community, and City Planning	1		1
Information Systems, Sciences & Systems Info.		1	1
Distributive, Commerce, and Business Education		1	1
Park and Recreation Management	1		1
Food Services		1	1
Sales Representative and Industrial Marketing	1		1
Petroleum Marketing	1		1
Transportation Marketing.Dist., Bus and Cab Driver	2		2
Nurse's Aide and Nursing Assistance (Aide)		3	3
X-Ray Technology, Technician and Radiologic Technology	1		1
Nursing		2	2
Tailor/Seamtress		1	1
Food Management Producation & Services, Food Broker	1	1	2
Home Furnishings, Equip. & Services, Carpet Installer	1		1
Computer Programmer	1	1	2
Architect	1		1
Blueprint Reading	1		1
Roofer, Roofing	1		1
Construction and Maintenance Trade, Other	1		1
Truck Driving, Trade & Industrial Occupations, Other	6	1	7
Total	318	44	362

1.7 Outcomes

Some potential outcomes measures are briefly examined in this section, specifically those having to do with labor force status, earnings and household income.

Labor Force Status

Information on labor force status as of a given week was obtained in each wave of the survey. The last wave inquired about labor force activity in the first week of February 1986. That information is presented in Table 13. The percentages in each category of the table can sum to more than 100 percent because the work and schooling categories are not mutually exclusive. For example, someone could be working and taking courses or on a break from school and work. However, the categories of working, keeping house, temporary layoff and looking for work sum to 100.8 percent, which is reasonable with rounding.

Those who had apprenticeship or employer provided training report the highest labor force participation rates: 94.5 percent for Apprentices, 93.6 percent for those who had employer provided training that was not OJT, and 88.3 percent for those who received employer provided OJT. The categories corresponding to Employment and Training programs, Other programs and Personal training as well as no training had lower proportions in the labor force. However, it will be remembered that these categories had higher proportions of women and the difference is largely accounted for by the proportion who reported that they were keeping house in February 1986. By 1986, only relatively small proportions of the sample were taking courses or participating in training. By far, the majority were in the labor force.

Earnings

The earnings of males and females are presented separately because of the differential proportions of males and females in the various training categories. Only earnings in 1984 and 1985 were covered in detail in the wave 5 (1986) followup. Information on average earnings is also presented for 1977, 1978 and 1979.

TABLE 13. LABOR FORCE STATUS FIRST WEEK OF FEBRUARY 1986 BY TYPE OF TRAINING

FREQUENCY COLUMN PERCENT	APPRENTICE SHIP	ARMED FORCES	EMPLOYER OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
WORKING	307	252	2192	177	161	70	139	401	3759
	84.8	77.1	81.6	88.1	69.4	64.8	69.8	69.6	78.7
GRAD, PROF	1	2	8	0	0	0	0	1	12
COURSES	0.2	0.6	0.3	0.00	0.00	0.00	0.00	0.2	0.2
ACADEMIC	6	29	113	8	8	6	12	26	208
COURSES	1.7	8.9	4.2	4.0	3.4	5.6	6.0	3.9	4.4
TAKING VOC,	18	17	94	6	7	2	7	15	166
TECH COURSES	5.0	5.2	3.5	3.0	3.0	1.8	3.5	2.3	3.5
GOVT. TRNG	10	5	12	3	2	0	1	0	33
	2.8	1.5	0.5	1.5	0.9	0.00	0.5	0.00	0.7
ARMED FORCES,	4	54	9	0	2	1	1	1	72
ACTIVE DUTY	1.1	16.5	0.3	0.00	0.9	0.9	0.5	1.5	1.5
KEEPING HOUSE	16	19	373	20	52	21	44	152	697
	4.4	5.8	13.9	10.0	22.4	19.4	22.1	23.0	14.6
TEMPORARY	14	10	42	1	4	2	2	16	91
LAYOFF	3.9	3.1	1.6	0.5	1.7	1.8	1.0	2.4	1.9
LOOKING FOR	21	23	136	10	27	6	8	35	266
WORK	5.8	7.0	5.1	5.0	11.6	5.6	4.0	5.3	5.6
BREAK FROM	2	6	32	1	4	3	3	11	62
SCHOOL	0.6	1.8	1.2	0.5	1.7	2.8	1.5	1.7	1.3
OTHER	27	14	179	10	17	16	21	56	340
	7.5	4.3	6.7	5.0	7.3	14.8	10.6	8.5	7.1

The average earnings of males in the various training categories for various years is presented in Table 14. The table contains the average earnings of each group for each year as well as the average earnings of each training group as a percentage of the average earnings of the "Other" group in each year. For example, the average earnings of the Apprentices in 1977 is $11,617 and the average earnings of this group is 118 percent of the average earnings of the "Other" category. The "Other" category is composed of individuals who did not participate in training but did take vocational or academic classroom training. This group is not, however, a matched Comparison group.

Within a given year, the distribution of earnings looks about as one would expect, ranging, for example, from 88 percent of the average earnings of the Other category for participants in Employment and Training programs to 118 percent among the Apprentices in 1977. By 1985, the average earnings among the Apprentices had increased to $24,559 or 131 percent of the average earnings of the "Other" category in that year ($18,779).

As indicated in Table 15, the average earnings of the females are lower than those of the males. Although at first glance this may seem strange since many of the individuals in the sample are in jobs that have established wage scales - with no differential by sex. There are, however, two explanations for this differential. First, as indicated for the Apprentices in Table 12, although there is some overlap, the occupations of the males and females differ, with some of the occupations that are filled by women having generally lower pay levels than those occupied by the males. Second, although not shown in the report, but included in an Appendix Table, higher proportions of the males in the sample are working for pay. Overall, 87 percent of the males in the sample were at work in February 1986, compared to 71 percent of the females. The proportion of females who participated in Apprenticeship who were working in February 1986 is slightly higher (75 percent). Since the averages presented are the average for the entire group, this reduces the average earnings of the females relative to that of the males. For example, the ratio of female Apprentice's average earnings to that of male Apprentices in 1986 is 51 percent. Adjusted for the differential in the proportion employed, that ratio rises to 59 percent which is closer to the national female/male earnings differential.

TABLE 14. MALE AVERAGE EARNINGS BY TYPE OF TRAINING, SELECT

AVERAGE PERCENT OF "OTHER" AVG.	1977	1978	1979	1984	1985
APPRENTICESHIP	$11,617	$13,160	$15,521	$22,312	$24,559
	1.18	1.13	1.18	1.28	1.31
ARMED FORCES	7,301	8,723	10,517	18,064	19,693
	.74	.75	.80	1.04	1.05
EMPLOYER	10,636	12,403	14,439	20,975	22,815
OJT	1.08	1.06	1.10	1.20	1.22
EMPLOYER	10,946	12,868	15,855	19,559	22,291
NOT OJT	1.11	1.10	1.20	1.12	1.19
E&T PROGRAM	8,635	10,296	11,773	12,896	14,207
	.88	.88	.89	.74	.76
OTHER PROGRAM	9,290	11,878	15,116	19,836	22,673
	.94	1.02	1.15	1.14	1.21
PERSONAL	9,209	10,782	12,269	16,669	18,153
	.93	.92	.93	.96	.97
OTHER	9,873	11,661	13,166	17,412	18,779
	1.00	1.00	1.00	1.00	1.00

TABLE 15. FEMALE AVERAGE EARNINGS BY TYPE OF TRAINING, SELECTED YEARS

AVERAGE PERCENT OF "OTHER" AVG.	1977	1978	1979	1984	1985
APPRENTICESHIP	$6,405	$8,249	$9,546	$9,998	$12,556
	1.41	1.55	1.55	1.43	1.60
ARMED FORCES	6,156	6,739	7,321	8,973	10,050
	1.35	1.27	1.19	1.28	1.28
EMPLOYER OJT	5,783	6,667	7,361	10,374	11,588
	1.27	1.25	1.20	1.48	1.48
EMPLOYER NOT OJT	5,802	6,762	7,567	11,020	11,998
	1.28	1.27	1.23	1.57	1.53
E&T PROGRAM	4,761	4,966	5,695	7,823	9,310
	1.05	.93	.93	1.12	1.19
OTHER PROGRAM	4,823	5,333	5,863	8,250	8,178
	1.06	1.00	.95	1.18	1.04
PERSONAL	5,437	5,419	6,748	8,649	8,873
	1.20	1.02	1.10	1.23	1.13
OTHER	4,549	5,324	6,153	7,012	7,840
	1.00	1.00	1.00	1.00	1.00

Despite the apparent sex differential, comparing the average earnings of the female Apprentices to the average earnings of females in the "Other" category is quite striking. Average earnings of the female Apprentices start at 141 percent of the average of the "Other" category in 1977 and rise to 160 percent of the earnings of that group by 1986.

Family Income

Table 16 indicates the family income of the participants in various types of training in selected years from 1977 to 1985. During this period family incomes of individuals in all categories more than doubled, the result of additional household earners and increases in earnings that resulted from experience and, particularly during this period, increases in the cost of living. Like the previous tables, this table presents the dollar averages for each group in each year as well as the average for the group expressed as a percentage of the average for the "Other" group for that year.

As might be expected based on the earlier results for earnings, the average family incomes of Apprenticeship participants are the highest and those for participants in Employment and Training programs the lowest of all the groups. Expressed as a percentage of the average for the "Other" group, the average household income of the Apprenticeship participants starts at 110 percent and rises to 115 percent by 1985.

1.8 Appendices

The information presented thus far in this report is based upon the actual sample counts. Distributions and averages, such as average income, are also the averages for the sample. This is because to this point, the interest was in the actual sample sizes and the information that can be obtained from this sample. However, as noted in the first section of this report, the sample for the fifth followup (wave 5) was based on a nonproportional subsample of the respondents in waves one through four. Overall, the subsample rate for the groups in this sample was 66 percent.

TABLE 16. FAMILY INCOME BY TYPE OF TRAINING SELECTED YEARS

AVERAGE PERCENT OF "OTHER" AVG.	1977	1978	1979	1984	1985
APPRENTICESHIP	$13,294	$15,755	$18,392	$28,847	$32,012
	1.10	1.11	1.13	1.14	1.15
ARMED FORCES	9,227	11,462	13,190	23,789	26,104
	.76	.80	.81	.94	.94
EMPLOYER OJT	12,398	14,606	16,930	27,266	30,353
	1.03	1.03	1.04	1.07	1.09
EMPLOYER NOT OJT	12,549	15,061	17,493	26,036	29,754
	1.04	1.06	1.08	1.02	1.07
E&T PROGRAM	9,620	10,787	13,271	19,291	21,526
	.80	.76	.82	.76	.77
OTHER PROGRAM	11,884	13,651	16,959	25,503	28,422
	.97	.96	1.04	1.00	1.02
PERSONAL	12,453	13,704	16,243	24,737	26,603
	1.03	.96	1.00	.97	.95
OTHER	12,057	14,235	16,278	25,422	27,897
	1.00	1.00	1.00	1.00	1.00

The Center for Education Statistics cautions that all analysis should be done using weighted data (variable FU5WT). Some subgroups of the total NLS sample (e.g., teachers or individuals who had education as their college major) were included in the followup with certainty while others had varying subsample rates. However, among the groups used in this report, the subsample rates did not vary substantially. On a weighted basis, the sample of 4,800 totals 1,118,000. The size of the weighted sample groups as well as the average subsample rates for each group are as follows.

	Weighted Sample	Subsample Rate
Apprenticeship	86,052	70
Armed Forces	82,262	62
Employer, OJT	627,590	69
Employer, Not OJT	47,442	62
E&T Programs	47,313	80
Other Program	27,251	60
Personal	50,075	66
Other	150,015	56
Total	1,118,000	67

Appendix A contains copies of the printouts for the tables presented in this report produced on a weighted basis. In general, any differences in the distributions are small and would not change any of the results presented in the report.

Appendix B contains a more detailed table (unweighted) which indicates, for each sample group, in which wave their training was received (TRAIN BY _YEAR). It also includes an unweighted table indicating the February 1986 Labor Force Status of the sample by sex and training category.

2. Effects of Apprenticeship Training

Based on the previous results, it was decided to proceed with the development of a Comparison group for those who had participated in Apprenticeship programs and to attempt to estimate the effects of that training on later employment, earnings, job satisfaction, etc. At this point, additional support was provided by the Bureau of Apprenticeship and Training, U.S. Department of Labor. The results of this work are presented in the following sections of this report.

2.1 Development of a Comparison Group

This section describes the procedures used to develop and test the resulting Comparison group. First, the merging into the fifth wave of the followup of the earlier selected sample produced some individuals who participated in Apprenticeship training who indicated that they had not undertaken either vocational or college education. Consequently, 498 individuals in the "Other" training category who, in the previous waves had indicated that they had not participated in either vocational or college classroom education and, hence, had been excluded from the sample were "resuscitated" and included in the sample. This brought the number of individuals in the "Other" category in the final sample to 818 after the merging into the wave five followup.

Matching

The procedure for the construction of a Comparison group was to match those individuals in the "Other" group to those who participated in Apprenticeship training. The former group included those who had received only classroom vocational training or less than baccalaureate academic education. The matching was performed using four variables:

Race - White and Other

Gender - Male and Female

High School Program:
- Academic
- Vocational
- General

Socioeconomic Status:
- High
- Medium
- Low.

Socioeconomic Status is, in turn, a construct of a number of other components that include the following variables:

Father's education
Father's occupation
Mother's education
Family income
Household items.

Household items is, in turn, a construct that includes the presence in the parental household of the following things:

Dictionary
Encyclopedia
Magazines
Newspapers
Two Cars
Typewriter
Dishwasher
Color TV
Tape recorder.

The match variables were recoded into the categorical variables outlined above and cells created that included the various combinations of the variables. Thus race became variable one taking on the values 1 (White) or 2 (Other), gender became variable two, taking on the values 1 (Male) and 2 (Female), etc. The cell classifications of the Apprentices are shown in the second column of Table 17 (e.g., cell 1111 is White Males with academic training in high school who came from families with a high socioeconomic status, etc.). Column three indicates the cell frequencies (on an unweighted basis) of the Apprentices. Column four indicates the cell frequencies for the "Other" (Comparison) group. The last two columns of the table indicate the frequencies for the various matched groups weighted by the inverse the cell frequencies. They are, of course, identical.

The cell frequencies are quite comparable in each match cell and therefore, the cell weights for the Comparison group are quite comparable. This is more the case for the males (variable one = 1) than for the females (variable one = 2) but the results are not that disparate. The resulting weighted frequencies are 356 in each group. As a consequence of the use of this matching and weighting procedure, the later regression results presented are weighted regressions in which the coefficients are based on the cell weights but the significance calculations are based on the actual number of observations.

2.2 Characteristics of the Apprentices and Comparisons

Tables 18 through 21 indicate the resulting distributions of the Apprentices and Comparisons for the four variables used in the matching (Race, Gender, High School Program and Socioeconomic Status). As a consequence of the matching and reweighting of the Comparisons, the resulting distributions are identical. However, several points can be made. Tables 18 and 19 indicate the relatively small numbers of nonwhites and females in the sample of Apprentices. Actually, the proportions of nonwhites and females appear high until it is remembered that participation in Apprenticeship is measured over the period from 1972 during which time females and nonwhites were encouraged to participate in Apprenticeship. Further, among the females, there are occupations that are on the fringe of what are usually considered formal Apprenticeship programs. Because of the differing occupational distributions of the males and females - and the consequent effects on wages and earnings - the later analysis of earnings is carried out separately for males and females.

TABLE 17

APPRENTICE/COMPARISON MATCHING RESULTS

OBS	CELL	UNWEIGHTED APPRENTICES	UNWEIGHTED COMPARISONS	WEIGHTED APPRENTICES	WEIGHTED COMPARISONS
1	1111	25	26	25	25
2	1112	72	70	72	72
3	1113	16	20	16	16
4	1121	12	12	12	12
5	1122	45	41	45	45
6	1123	19	21	19	19
7	1131	11	20	11	11
8	1132	40	44	40	40
9	1133	10	10	10	10
10	1211	2	36	2	2
11	1212	8	99	8	8
12	1213	3	27	3	3
13	1221	1	28	1	1
14	1222	8	71	8	8
15	1223	4	25	4	4
16	1232	2	78	2	2
17	1233	1	15	1	1
18	2111	10	19	10	10
19	2112	10	6	10	10
20	2121	1	5	1	1
21	2122	6	4	6	6
22	2123	4	3	4	4
23	2131	19	12	19	19
24	2132	11	7	11	11
25	2211	4	41	4	4
26	2212	4	18	4	4
27	2213	1	1	1	1
28	2221	1	19	1	1
29	2222	3	12	3	3
30	2231	3	36	3	3
		356	818	356	356

TABLE 18

RACE BY APPRENTICE/COMPARISON
CELL WEIGHTED

Frequency Column Percent	Apprenticeship	Comparison	Total
White	279 78.37	279 78.37	558 78.37
Other	77 21.63	77 21.63	154 21.63
Total	356 50.00	356 50.00	712 100.00

TABLE 19

SEX BY APPRENTICE/COMPARISON
(CELL WEIGHTED)

Frequency Column Percent	Apprenticeship	Comparison	Total
White	311 87.36	311 87.36	622 87.36
Other	45 12.64	45 12.64	90 12.64
TOTAL	356 50.00	356 50.00	712 100.00

Table 20 indicates the distribution of high school program for the Apprentices and Comparisons. Forty-four percent of the sample were enrolled in a general program in high school, 29 percent in an academic program, and 27 percent in a vocational-technical program.

Table 21 indicates the distribution of the sample according to the level of socioeconomic status of the households in which they grew up. One-fourth of the sample came from households with low socioeconomic status and 59 percent from medium status households. Sixteen percent of the sample came from households with high socioeconomic status. Thus, three-quarters of the Apprentices in the sample came from medium or high socioeconomic status households.

The highest educational level attained by 1986 was constructed across the waves of the survey and categorized into no college or vocational education beyond high school, vocational education, some college, and college graduation or more. The distribution of educational attainment of the Apprentices and Comparison group members is presented in Table 22. Note that educational attainment was not one of the variables used in the matching of the Comparison group.

Despite the fact that is was not a match variable, twenty-two percent of the Apprentices and Comparisons had no college or vocational education after high school. Further, only one percent of each group had completed college. As might be expected, of the remaining roughly three-quarters of the sample, relatively more of the Apprentices had received vocational education (52 percent), while relatively more of the Comparison group had received general academic instruction (46 percent). However, the similarity of educational attainment between the Apprentices and Comparisons is striking.

Table 23 indicates the distribution of high school grades for the sample of Apprentices and Comparisons. The high school grades were constructed by the National Center for Educational Statistics from the transcript information collected as part of the initial survey wave. Since early in the study, not all schools granted permission to access student transcript data, there is some missing data on high school grades (roughly 6 percent of the sample). The similarity of the distribution of high school grades between the Apprentices and Comparisons is even more striking than the similarity of educational attainment.

TABLE 20

TYPE OF HIGH SCHOOL PROGRAM
BY APPRENTICE/COMPARISON
(CELL WEIGHTED)

Frequency Column Percent	Apprenticeship	Comparison	Total
General	155 43.54	155 43.54	310 43.54
Academic	104 29.21	104 29.21	208 29.21
Vo-Tech	97 27.25	97 27.25	194 27.25
TOTAL	356 50.00	356 50.00	712 100.00

Table 21

SOCIOECONOMIC STATUS
BY APPRENTICE/COMPARISON
(CELL WEIGHTED)

Frequency Column Percent	Apprenticeship	Comparison	Total
Low	89 25.00	89 25.00	178 25.00
Medium	209 58.71	209 58.71	418 58.71
High	58 16.29	58 16.29	116 16.29
TOTAL	356 50.00	356 50.00	712 100.00

TABLE 22

EDUCATIONAL ATTAINMENT BY 1986
OF APPRENTICES/COMPARISONS
(CELL WEIGHTED)

Frequency Column Percent	Apprenticeship	Comparison	Total
Missing	0 0.00	1 0.18	1 0.09
No Col, No Voc	77 21.63	78 22.03	155 21.83
Vocational	185 51.97	108 30.24	293 41.10
Some College	92 25.84	165 46.22	257 36.03
Col Grad or More	2 0.56	5 1.33	7 0.94
TOTAL	356 50.00	357 50.00	713 100.00

TABLE 23

AVERAGE HIGH SCHOOL GRADES
OF APPRENTICES/COMPARISONS
(CELL WEIGHTED)

Frequency Column Percent	Apprenticeship	Comparison	Total
Missing	20 5.62	24 6.81	44 6.21
A	7 1.97	11 2.98	18 2.48
A - B	31 8.71	37 10.26	68 9.48
B	63 17.70	55 15.41	118 16.55
B - C	115 32.30	116 32.58	231 32.44
C	78 21.91	74 20.92	152 21.41
C - D	37 10.39	35 9.80	72 10.10
D	5 1.40	4 1.24	9 1.32
TOTAL	356 50.00	356 50.00	712 100.00

As a note on the matching and weighting procedure used for this study, high school grades were considered as an additional matching variable in order to include a measure of ability. The cost of including high school grades as an additional match variable was that there would be some loss of sample due to missing data. Note that there are 20 Apprentices and 50 (unweighted) Comparison group members for whom there are missing data in Table 23.

Based on the similarity of the distributions of high school grades and the potential sample loss, it was decided that this variable would not be included in the matching process. This appears to have been the correct decision. Given the nearly exact distribution for the resulting two groups, very little would have been added to the matching process. Rather, high school grades (recoded as A-B, B-C, C-D) was included in the initial specifications of the regressions presented later in this chapter. As might be expected, the two dichotomous variables (A-B, C-D) never achieved significance and hence were dropped from the final specifications presented in these results.

The major disappointment of this study, at least to the author, had to do with the attempt to include another measure of ability. As part of the baseline wave of the survey, students in the sample were tested for aptitude and a factor-weighted scale created from the results of six test scores. Individual sample members were then categorized as low, middle and high ability. However, it was noted in Section 1.1 that a substantial number of sample members were brought into the sample after the baseline survey -- permission to test and obtain transcript information having not been obtained at the time the baseline field survey was done. Transcript information was obtained later, but testing of this group was never carried out. Consequently, data (such as ability measures) based on the testing is missing for these sample members. Included in this group are 109 of the 356 Apprentices. Consequently, it was not possible to use the ability index, or its categorization, as either a match or an analysis variable in this study.

2.3 Union Membership

The extent of union membership among the Apprentices and Comparisons is indicated in Table 24. Here there is some difference between the two groups. As might be

expected, a high proportion of the Apprentices (74 percent) were members of a union at some time between graduation from high school and 1979, compared to 44 percent of the Comparisons.[1]

As suggested by the results in Table 24, the correlation between the union membership and the Apprenticeship variables is not that high (.39), and the number of union members among the Comparisons is substantial (more than 300 unweighted). Consequently, there is generally a significant and separable effect for each of these variables, which is fortunate because if the correlation between the union membership variable and the Apprenticeship variable had been too high or the number of union members among the Comparisons too small, it would not have been possible to statistically separate the union wage (earnings) differential from the (hypothesized) Apprenticeship differential in the later analysis of wages and earnings.

2.4 Outcomes

This section of the chapter presents the results for the outcome variables of interest -- employment, wages, earnings, and job satisfaction.

Tables 25 and 26 present the average earnings of the males and females respectively, by year for the years in which earnings could be determined. Average earnings are presented separately for Apprentices and Comparisons along with the difference between the two groups (Apprentice minus Comparison average earnings) in both absolute and percentage terms.

Three sets of average earnings are included in each table. The first is the simple (unweighted) average earnings of the two groups. The second set is weighted using the cell weights that resulted from the matching procedure. The third set is weighted using both the cell weights from the matching procedure and the fifth followup wave national population weights from the survey (individual earnings X cell weight X national weight). Note that the weighting has relatively little effect on the results. The effect of the cell weights is in the neighborhood of $100 for the males and the addition of the national weights only doubles that figure. The effect of the weights are greater for the females since there is greater variation of the cell weights for them. However, the general direction of the differences is not affected.

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[1] It is not possible to determine union membership accurately in the final (1986) wave of the survey.

TABLE 24

EXTENT OF UNION MEMBERSHIP
BY APPRENTICES/COMPARISONS
(CELL WEIGHTED)

Frequency Column Percent	Apprenticeship	Comparison	Total
No	94 26.40	200 56.07	294 41.24
Yes	262 73.60	156 43.93	418 58.76
TOTAL	356 50.00	356 50.00	712 100.00

Table 25

AVERAGE EARNINGS DIFFERENCES
(APPRENTICES/COMPARISONS)
BY YEAR
MALES

	Apprentices	Comparisons	Difference	Percent
UNWEIGHTED				
Earnings 1975	$8,209	$6,755	$1,454	21.5
Earnings 1976	$9.268	$7,785	$1,483	19.0
Earnings 1977	$11,660	$9,777	$1,883	19.3
Earnings 1978	$13,224	$11,487	$1,737	15.1
Earnings 1979	$15,623	$13,286	$2,337	17.6
Earnings 1984	$22,428	$17,193	$5,235	30.4
Earnings 1985	$24,734	$18,539	$6,195	33.4
ADJUSTED FOR CELL WEIGHTS				
Earnings 1975	$8,209	$6,723	$1,486	22.1
Earnings 1976	$9,268	$7,681	$1,587	20.7
Earnings 1977	$11,660	$9,726	$1,934	19.9
Earnings 1978	$13,224	$11,383	$1,841	16.2
Earnings 1979	$15,623	$13,212	$2,411	18.2
Earnings 1984	$22,428	$17,215	$5,213	30.3
Earnings 1985	$24,734	$18,512	$6,222	33.6
ADJUSTED FOR CELL WEIGHTS AND NATIONAL WEIGHTS				
Earnings 1975	$8,129	$6,755	$1,354	20.0
Earnings 1976	$9,431	$7,830	$1,601	20.4
Earnings 1977	$11,605	$9,804	$1,801	18.4
Earnings 1978	$13,271	$11,610	$1,661	14.3
Earnings 1979	$15,934	$13,560	$2,374	17.5
Earnings 1984	$23,647	$17,325	$6,322	36.5
Earnings 1985	$25,708	$18,404	$7,304	39.7

Table 26

AVERAGE EARNINGS DIFFERENCES
(APPRENTICES/COMPARISONS)
BY YEAR
FEMALE

	Apprentices	Comparisons	Difference	Percent
UNWEIGHTED				
Earnings 1975	$3,753	$3,477	$276	7.9
Earnings 1976	$4.464	$3,959	$505	12.8
Earnings 1977	$6,421	$4,229	$2,192	51.8
Earnings 1978	$8,230	$4,969	$3,261	65.6
Earnings 1979	$9,507	$5,716	$3,791	66.3
Earnings 1984	$9,927	$6,966	$2,961	42.5
Earnings 1985	$12,376	$7,714	$4,662	60.4
ADJUSTED FOR CELL WEIGHTS				
Earnings 1975	$3,753	$3,498	$255	7.3
Earnings 1976	$4,464	$4,107	$357	8.7
Earnings 1977	$6,421	$4,279	$2,142	50.1
Earnings 1978	$8,230	$5,220	$3,010	57.7
Earnings 1979	$9,507	$5,862	$3,645	62.2
Earnings 1984	$9,927	$7,396	$2,531	34.2
Earnings 1985	$12,376	$8,275	$4,101	49.6
ADJUSTED FOR CELL WEIGHTS AND NATIONAL WEIGHTS				
Earnings 1975	$3,598	$3,683	($85)	-2.3
Earnings 1976	$4,148	$4,235	($87)	-2.1
Earnings 1977	$6,325	$$4,288	$2,037	47.5
Earnings 1978	$8,961	$5,097	$3,864	75.8
Earnings 1979	$10,936	$5,548	$5,388	97.1
Earnings 1984	$9,561	$6,861	$2,700	39.4
Earnings 1985	$11,467	$7,601	$3,866	50.9

The results for the females suffer from their relatively small numbers in the sample. Significant differences for the female Apprentices only show up in the later years. In the earlier years their labor force participation rates are considerably lower than for the males. The union differentials are significant but smaller for the females than the males. Presumably, this reflects occupational differences between the two groups. However, by 1985 the Apprentice differential for the females is of the same magnitude as it is for the males and, on a relative basis, larger.

Note that the minority coefficient is generally negative but nonsignificant for the males. However, for the females the minority coefficient is generally positive and, in the later years highly significant. This is probably reflective of entry into certain occupations and supports the idea of placing women in nontraditional occupations, particularly minority females.

The obvious question is what accounts for the observed differences in earnings for the Apprentices? One answer is provided by labor force participation in the early years. The labor force participation rates of the Apprentices were generally higher earlier. This stands to reason since much of the Apprentice's training is provided on the job. Table 28 indicates the number of weeks worked from June of 1972 through October 1979. The results are presented unweighted, weighted by the cell weights, and regression adjusted using a weighted regression procedure and the same specification used in the previous equations. Between the Spring of 1972 and the Fall of 1979 male Apprentices worked 304 weeks out of a possible 338 weeks. This compares to an average of 283 weeks among the Comparisons. On a regression adjusted basis, the difference is 15 weeks or slightly more than one-quarter of a year in six and one-half year period. The average number of weeks worked among the females is lower but the net difference is slightly larger. The lack of significance is due to the smaller number of (unweighted) cases.

Table 28

AVERAGE NUMBER
OF WEEKS WORKED
1972 - 1979

UNWEIGHTED	APPRENTICE	COMPARISON
MALE	303.8	283.1
FEMALE	241.0	207.7
WEIGHTED		
MALE	303.8	281.5
FEMALE	241.0	209.3
REGRESSION ADJUSTED DIFFERENCE		
MALE	14.6***	
FEMALE	15.6	

The most interesting point is that the differences grow both absolutely and relatively over time. This occurs despite the fact that while they are in the Apprenticeship program, Apprentices are usually paid a training wage of 50 to 75 percent of the journeyman wage for the occupation.

The average earnings of the females are lower, as are the absolute differences from the averages for the Comparison group. However, the percentage differences start smaller than those of the males but end up being larger. As can be seen in some of the other tables in the report, the male-female differential is largely related to labor force participation in the early years and primarily due to occupational differences in the later years. In 1986, the average wage of women who work is 69 percent of the average wage of the males. The difference is occupational, since in the same occupation, particularly in the presence of a union, there would be no difference other than those that result from differences in previous work experience.

In contrast to these results, the results of a net impact estimation for the Public Employment Program (PEP) and the Comprehensive Employment and Training Act (CETA) programs, using methodologies similar to that employed here, indicated earnings effects of the training in the neighborhood of $300 per year, and there was some indication that the effects of the training decayed over time.[2] These results are, of course, overall averages and include differentials resulting from Apprenticeship, union membership, and other differences in characteristics between the two groups.

Table 27 includes regression-adjusted results for males and females separately. The union variable is in all cases significant, generally at the one percent level of significance. There is a separate positive Apprenticeship coefficient that is in all cases positive. It is significant at the five percent significance level or higher in five of the seven years for the males and four of the seven years for the females - generally the later years in the sequence. Further, in stepwise regressions, the Apprenticeship variable always entered first, followed by the union variable which reduced the coefficient of the Apprenticeship variable. Thus, it seems that it is possible to separate the effect of Apprenticeship from the union differential.

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[2]Robert F. Cook, **Continuous Longitudinal Manpower Survey: Net Impact Report No. 1**, U.S. Department of Labor, Westat, March 1981 (with others). **The Net Earnings Impact of the Public Employment Program (PEP): An Exploratory Analysis**, U.S. Department of Labor, Westat, October 1979 (with others).

TABLE 27

EARNINGS REGRESSIONS
APPRENTICESHIP
WEIGHTED

INDEPENDENT VARIABLES

DEPENDENT VARIABLE	INTERCEPT	MINORITY	HIGH SCHOOL PROGRAM: EMPLOYER OJT/ APPRENTICE	HIGH SCHOOL PROGRAM: ACADEMIC	HIGH SCHOOL PROGRAM: VO-TECH	UNION	SOCIOECONOMIC STATUS: LOW	SOCIOECONOMIC STATUS: HIGH	F
MALES									
1975 EARNINGS	6036.99 ***	-1123.69 **	1157.77 ***	612.77	769.07 *	1589.06 ***	-589.32	-578.75	6.67
1976 EARNINGS	6829.49 ***	-904.88	834.80 *	336.15	184.63	2818.50 ***	-877.56 *	-379.43	8.71
1977 EARNINGS	8811.49 ***	-870.36	1032.61 **	473.90	657.64	2907.25 ***	-1036.95 *	-772.96	7.88
1978 EARNINGS	10357.54 ***	-988.62	695.99	745.15	61.50	3288.80 ***	-313.81	-822.54	6.70
1979 EARNINGS	11555.72 ***	696.96	1476.52 **	1409.00 *	72.83	3749.51 ***	-1159.79	59.46	6.89
1984 EARNINGS	15392.78 ***	-643.25	3481.96 ***	2261.16 *	705.55	5199.32 ***	-2467.46 *	-1033.98	7.10
1985 EARNINGS	17163.72 ***	144.50	4656.96 ***	2602.37 *	1316.64	4234.37 ***	-3866.86 ***	-950.01	7.02
FEMALES									
1975 EARNINGS	3055.66 ***	-414.26	93.48	656.97 **	234.29	1264.84 ***	353.90	-412.34	4.01
1976 EARNINGS	3162.90 ***	* 22.83	83.45	746.41	592.82	1234.13 ***	150.60	1506.91 **	2.62
1977 EARNINGS	3441.80 ***	1298.66 ***	1177.90 **	-434.56	35.65	1745.06 ***	427.16	1144.97 **	6.56
1978 EARNINGS	4027.74 ***	2752.24 ***	2080.54 ***	-2083.93 **	-728.45	3207.86 ***	910.11	863.04	11.03
1979 EARNINGS	5023.89 ***	2265.13 **	1545.18	-1791.95 *	2355.78	5142.31 ***	1424.96	-1095.09	8.67
1984 EARNINGS	4363.77 ***	2853.67 **	2427.24 **	1755.90	4660.95 **	1496.13 ***	1325.71	3193.53 **	3.81
1985 EARNINGS	4902.50 ***	3564.22 ***	4090.04 ***	1886.09	6585.37 ***	2791.37 **	304.54	2217.08	5.66

Notes: *** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

By 1986, the proportions of Apprentices and Comparisons in various labor market statuses had roughly equalized, as had hours worked per week among those who worked, as is indicated in Table 29. Although the proportion of Apprentices working for pay is higher than for the Comparisons, the proportion unemployed is slightly higher. This is not terribly surprising since labor force activity in this case is measured as of the first week in February of 1986 - not a particularly good time of the year for the construction trades.

Also indicated in Table 29 are the average wage of those working in the first week in February 1986 as well as the average number of hours worked. Only calculated individual wages between $2.00 and $32.50 were included in the analysis. Similarly, hours worked by each individual were only included in the average if the reported number of hours was in the range of 1 to 93 hours.

The average hours of the male Comparisons is one hour greater than the male Apprentices. However, the difference in average hourly wages is such that the average weekly earnings of the Apprentices ($556.80) is substantially above that of the Comparisons ($449.90).

Among the females, both the average wage and average hours per week are above those of the Comparisons. The resulting average weekly earnings of the female Apprentices is $336.40 compared to $269.22 for the female Comparison group members.

Table 29

AVERAGE HOURS AND WAGES
APPRENTICES/COMPARISONS
WORKING IN FIRST WEEK OF FEBRUARY 1986

	Average Wage[1]	Average Hours[2]
MALES		
Apprentices	$12.80	43.5
Comparisons	$10.11	44.5
FEMALES		
Apprentices	$8.67	38.8
Comparisons	$7.16	37.6

[1]Wages included only the range $2.00 - $32.50 per hour.

[2]Hours included only in the range 1-93 hours per week.

Table 30 examines these wage differences in more detail. Separate wage equations were estimated for males and females. Among the males the wage differential for the Apprentices is $2.24 per hour among those who worked in the first week in February of 1986. The differential for union members is $1.59 per hour. Nonwhite males received a wage that was on average $1.20 lower than that of whites.

Among the females, the Apprentice differential is roughly half that of the males ($1.11 per hour) but quite significant, both absolutely and statistically. Similarly, the union differential is smaller but still significant. Note that among the females, the differential for nonwhites is considerably smaller than among the males and it is nonsignificant. These results are similar to those cited earlier for earnings and, again, support the concept of nontraditional jobs for females, particularly nonwhite females.

2.5 Costs and Benefits

The original intent was to perform a cost-benefit analysis on the returns to participation in Apprenticeship training. However, this could not be done. Data on costs of education was not collected after the 1979 wave of the survey. This is probably not a significant problem since the proportions of sample members in school is quite small in the later period.

Table 31 shows the average total cost of schooling for each year from graduation through the Fall of 1979, as well as the total over the period for the Apprentices and Comparison group members. The first point to be made is that the schooling costs are comparable for the two groups. More important for the current analysis is that the average cost of schooling over the period is higher for the Comparison group members than for the Apprentices. This is consistent with the fact that the Apprentices work more and receive more of their training on the job, while the Comparisons invest more time and money in classroom training.

The fact that the benefits in terms of earnings are positive for the Apprentices and the cost of the education (including lower training wages and time invested) is lower than for the Comparisons precludes the calculation of a traditional cost/benefit ratio.

Table 30

WAGE REGRESSIONS
CELL WEIGHTED
MOST RECENT JOB
OF THOSE WORKING
FEBRUARY 1986

	Males	Females
Intercept	$9.61***	$5.75***
Race - Other	($1.20)**	($0.30)
Apprentice	$2.24***	$1.11***
HSPGM - Academic	$0.03	$2.47
HSPGM - Vo-Tech	$0.13	$0.51
Union	$1.59***	$1.17***
SES - Low	($1.25)**	($0.38)
SES - High	($0.17)	$0.99**
R Square	0.12	0.14
F	11.35	10.37

NOTES:

*** Denotes significant at the one percent level
** Denotes significant at the five percent level
* Denotes Significant at the ten percent level

Table 31

AVERAGE COST OF SCHOOLING
CELL WEIGHTED
(VARIOUS YEARS)

	Apprentices	Comparisons
First Year After Grad.	$767.57	$1,067.95
Fall '73 - Summer '74	$1,305.71	$1,488.59
Fall '74 - Summer '75	$838.44	$953.47
Fall '75 - Summer '76	$1,067.85	$904.95
Fall '76 - Summer '77	$385.23	$454.72
Fall '77 - Summer '78	$457.65	$471.94
Fall '78 - Summer '79	$500.61	$400.24
Total, Grad to Summer '79	$5,323.06	$5,741.86

To provide some notion of how such a calculation would turn out, the weighted (male/female) earnings differential was calculated based on the regression estimates of the differential for the period 1975-1979; it came to $5,170. This is greater than the cost of education over that period ($3,250) and is almost equal to the cost of education for the Apprentices for the entire period from 1972 through 1979 ($5,323). In essence, calculated by any means, a cost/benefit ratio for participation in Apprenticeship training would approach infinity.

As a final measure of benefit, Table 32 indicates the percentages of Apprentices and Comparisons who were very satisfied, satisfied, dissatisfied, and very dissatisfied with their jobs as a whole in various years - the only years in which the question was asked. Among the Apprentices, at least one-quarter were "very satisfied" with their jobs in every year compared to roughly 20 percent of the Comparisons. Further, 80-90 percent of the Apprentices were satisfied with their jobs, and this proportion grows over time. In all years this proportion exceeds that of the Comparisons.

Table 32

SATISFACTION WITH JOB AS A WHOLE
CELL WEIGHTED
(VARIOUS YEARS)
(PERCENT)

	1973	1974	1976	1979	1986
Very Satisfied					
Apprentices	26.0	29.7	28.5	32.6	24.7
Comparisons	21.4	24.0	21.5	25.5	17.5
Satisfied					
Apprentices	54.7	53.4	55.9	58.5	61.5
Comparisons	58.3	56.1	57.5	58.5	61.8
Dissatisfied					
Apprentices	11.2	13.3	12.2	7.7	12.1
Comparisons	12.2	15.6	15.4	13.1	13.6
Very Dissatified					
Apprentices	7.8	3.6	3.4	1.2	1.2
Comparisons	8.2	4.3	5.6	2.9	4.5
Don't Know					
Apprentices	0.4	0	0	0	0.6
Comparisons	0	0	0	0	2.7
TOTAL	100	100	100	100	100

3. Relative Effects of Apprenticeship Training

Another approach to measuring the effects of Apprenticeship training is to compare it to other forms of training - in this case, employer provided on-the-job training. Theory tells us something about how this comparison should come out. Economic theory differentiates between general and specific training.[1] General training is that which is applicable to a number of different job situations and employers. Specific training is applicable only to the employer who is providing the training. An example of general training would include training in the operation of a machine or computer system that is used by a number of firms. An example of specific training would be training in the operation of machines used only by the firm offering the training or in inventory accounting procedures used only in that firm.

Workers will accept a lower wage to engage in general training since it has applications with other employers and will raise their later earnings. That is, workers will pay for the cost of their training. Workers will not accept a lower wage and may even require a wage premium to engage in specific training since it has no application beyond their current job. Therefore, the employer must pay the full cost or nearly the full cost of such training. Once trained, workers who receive general training must be paid a higher wage to compensate them for investing in their training. Otherwise, the worker will go to another employer who is prepared to pay for the skills held by the worker. Workers who have received specific training do not receive the full increase in their productivity in the form of a higher wage. Rather the employer receives a return on his investment in the training.

There are also some corollaries to this theory. Since all of the specific training is received on the job, workers who are receiving specific training will be employed more relative to those who have to take some of their training off the job. Second, in times of slack work, employers will be more likely to lay off generally trained workers because they can be replaced when the amount of work increases with other generally trained workers. Employers will be less likely to lay off specifically trained workers because they will lose the value of the training provided.

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[1] Gary Becker, **Human Capital**, National Bureau of Economic Research, New York, 1964, pp. 7-36.

Most training on-the-job is some combination of general and specific training, so some costs will be shared between the worker and the firm. However, Apprenticeship is more in the nature of general training since the training provided is certified to all potential employers. This is the essence of the economic reason for paying a training wage while the Apprentice is in training. Upon completion of training the Apprentice must be paid the same wage as all individuals who have the training. Employer provided OJT is likely to be more specific in nature.

Other things equal, we would expect that the those who receive employer provided OJT would work more than the Apprentices in the early years. We would also expect the earnings of the employer OJT group to exhibit higher earnings during the period of training relative to the Apprentices. However, once the training is completed, the wages and earnings of the Apprentices relative to employer provided OJT will depend upon how much of the training is specific and the amount of training provided. Finally, although we cannot test this hypothesis, we would expect the Apprentices to be more likely to experience layoff than workers who receive employer provided OJT.

3.1 The Employer OJT Group

Table 1 in Chapter one indicated that 2,701 individuals who received employer provided OJT could be matched into the fifth followup (1986). A cell match like the one described in chapter two was used to match the employer OJT group to the (weighted) Comparison group, which, in turn, had been matched to the Apprentice sample. Eight-two percent of the employer OJT group (2,228) could be matched on the variables used for the match (1,087 males and 1,141 females). Therefore, the average individual weight in the OJT sample is 0.16. The size of the weighted group is, of course, 356, the same as the Comparison group and the Apprentices.

3.2 Characteristics of the OJT Group

The weighted distributions of the OJT group with regard to sex, race, socioeconomic status and type of high school programs are necessarily identical to those of the Apprentices presented in chapter two of this report. Table 33 contains the distribution of high school grades for the Apprentices, the employer OJT group and the Comparisons. Although the high school

grades were not used as a match variable, the comparability of these distributions is striking. The largest difference is less than 3 percent and most are within one percent.

The distributions of educational attainment by 1986 is presented for the three groups in Table 34. The group that received employer provided OJT is more likely to have had no college or classroom vocational training (31 percent) than the Apprentices or Comparisons (22 percent). Almost the same percentage of Comparisons and those with employer OJT have had some vocational training (31 percent). The OJT group is more likely to have had some college than the Apprentices (36 percent) but less than the Comparison group. The percentage of college graduates in each of the three groups is 1 percent. The higher proportion of the employer OJT group with no college or vocational education is probably a response to training provided on-the-job by the employer.

3.3 Union Membership

The proportions of the three groups who were members of a union between high school graduation and the Fall of 1979 is indicated in Table 35. Slightly over half (52 percent) of those who received employer OJT were members of a union at some time in the interval. This is higher than for the Comparisons (44 percent) but lower than among the Apprentices (74 percent). On an unweighted basis, there are over one thousand individuals in the employer OJT group who were union members.

3.4 Outcome Measures

The average earnings of the Apprentices, those who received employer provided OJT and Comparisons for the various years in which earnings data was available is indicated for the males in the samples in Table 36 and for the females in the various samples in Table 37. The averages are presented unweighted and weighted using the cell weights from the matching.

Table 33

AVERAGE HIGH SCHOOL GRADES BY TYPE OF TRAINING
CELL WEIGHTED

Frequency Column Percent	Apprenticeship	Employer OJT	Comparison	Total
Missing	20 5.62	25 6.95	24 6.81	69 6.46
A	7 1.97	8 2.27	11 2.98	26 2.41
A - B	31 8.71	40 11.29	37 10.26	108 10.08
B	63 17.70	60 16.75	55 15.41	178 16.62
B - C	115 32.30	114 31.96	116 32.58	345 32.28
C	78 21.91	73 20.40	74 20.92	225 21.08
C - D	37 10.39	33 9.15	35 9.80	105 9.78
D	5 1.40	4 1.23	4 1.24	13 1.29
TOTAL	356 33.33	356 33.33	356 33.33	1068 100.00

Table 34

EDUCATIONAL ATTAINMENT BY 1986 BY
TYPE OF TRAINING
CELL WEIGHTED

Frequency Column Percent	Apprenticeship	Employer OJT	Comparison	Total
MISSING	0 0.00	3 0.74	1 0.18	4 0.31
NO COL, NO VOC	77 21.63	110 30.78	78 22.03	265 24.81
VOCATIONAL	185 51.97	109 30.61	108 30.24	402 37.60
SOME COLLEGE	92 25.84	130 36.47	165 46.22	386 36.18
COL GRAD OR MORE	2 0.56	5 1.40	5 1.33	12 1.10
TOTAL	356 33.33	356 33.33	356 33.33	1068 100.00

Table 35

UNION MEMBERSHIP 1972 - 1979
CELL WEIGHTED

Frequency Column Percent	Apprenticeship	Employer OJT	Comparison	Total
NO	94 26.40	169 47.53	200 56.07	463 43.33
YES	262 73.60	187 52.47	156 43.93	605 56.67
TOTAL	356 33.33	356 33.33	356 33.33	1068 100.00

Table 36

AVERAGE EARNINGS - MALES
VARIOUS YEARS

YEAR	APPRENTICE	Employer OJT	COMPARISON
UNWEIGHTED	N = 311	N = 1,087	N = 320
1975	$8,209	$7,912	$6,755
1976	9,268	9,189	7,785
1977	11,660	10,694	9,777
1978	13,224	12,458	11,487
1979	15,623	14,499	13,286
1984	22,428	20,932	17,193
1985	24,734	22,769	18,539
CELL WEIGHTED			
	N = 311	N = 311	N = 311
1975	$8,209	$7,954	$6,723
1976	9,268	9,224	7,683
1977	11,660	10,731	9,726
1978	13,224	12,522	11,383
1979	15,623	14,579	13,212
1984	22,428	20,980	17,215
1985	24,734	22,888	18,512

Table 37

AVERAGE EARNINGS - FEMALES
VARIOUS YEARS

YEAR	APPRENTICE	Employer OJT	COMPARISON
	N = 45	N = 1,411	N = 498
UNWEIGHTED			
1975	$3,753	$4,454	$3,477
1976	4,464	4,996	3,959
1977	6,421	5,903	4,229
1978	8,230	6,823	4,969
1979	9,507	7,410	5,716
1984	9,927	10,541	6,966
1985	12,376	11,794	7,714
CELL WEIGHTED			
	N = 45	N = 45	N = 45
1975	$3,753	$4,516	$3,448
1976	4,464	4,983	4,107
1977	6,421	6,124	4,279
1978	8,230	7,164	5,220
1979	9,507	7,702	5,862
1984	9,927	10,645	7,396
1985	12,376	12,076	8,275

The first point is by now familiar. The use of the cell weights has relatively little effect on the group average earnings - in all cases less than $100 in the average among the males and $300 among the females. Further, the weighting does not affect the direction of the results. The cell weighted averages for the employer OJT group are uniformly higher than those of the Comparison group. However, with the exception of 1975 and 1976 for the females they are below the averages for the Apprentices in each year. These are, of course, only simple averages for the various groups.

Tables 38 and 39 present regression adjusted estimates of the differences in earnings in the various years for males and females respectively. The first set of regressions in each table is the group with employer provided OJT relative to the Comparison group. The earlier regression estimates of the earnings effect of Apprenticeship relative to the Comparison group are repeated in the second set of equations for the convenience of the reader.

The estimates of the returns to employer provided OJT are large, increasing and highly significant. The significance is not surprising given the underlying (unweighted) sample sizes. The differentials rise from over $1,000 in 1975 to over $3,600 in 1986. Unlike the results for the Apprentice/Comparison results, the differentials were comparable for males and females. Like the results for the Apprentice/Comparison equations, the minority differentials for the females are generally positive and, in the later years, significant. The union differentials are always positive and highly significant for both the males and the females.

Comparing the results for the Apprentices/Comparisons to those for the employer OJT/Comparisons is interesting. For the males the differentials for the employer OJT compared to the Apprentices trades off in the first four years, with the differential for the Apprentices being higher in two of the years and higher for the employer OJT groups in two years. The two years in which they are higher for the employer OJT group are the two years in which the Apprenticeship differentials are not significant at the five percent level of significance. In the last three years the differential relative to the Comparisons is higher for the Apprentices and the gap increases relative to the differential for the employer OJT group. Among the females the Apprentice/Comparison differential is higher than the employer OJT/Comparison differential in only three of the seven years. With the exception of the first two years, the differentials for the Apprentice and employer OJT females are comparable in size. A final point of interest is the

TABLE 38

MALE EARNINGS REGRESSIONS
APPRENTICESHIP/EMPLOYER OJT
WEIGHTED

INDEPENDENT VARIABLES

DEPENDENT VARIABLE	INTERCEPT	MINORITY	EMPLOYER OJT/ APPRENTICE	HIGH SCHOOL PROGRAM ACADEMIC	HIGH SCHOOL PROGRAM VO-TECH	UNION	SOCIOECONOMIC STATUS LOW	SOCIOECONOMIC STATUS HIGH	F
EMPLOYER OJT									
1975 EARNINGS	6248.15 ***	-201.11	1209.57 ***	244.62	519.14 *	1242.44 ***	-826.07 **	-323.63	9.07
1976 EARNINGS	7103.50 ***	-391.67	1384.46 ***	7.08	211.08	1932.00 ***	-852.24 **	525.59	11.60
1977 EARNINGS	9548.07 ***	-714.63	780.46 **	-10.94	-6.06	2068.58 ***	-1246.10 ***	-522.88	9.92
1978 EARNINGS	11188.06 ***	-901.90 *	762.29 **	-105.99	-450.46	2414.45 ***	-749.94	-247.42	8.63
1979 EARNINGS	12475.28 ***	-965.85	1311.57 ***	-360.82	-548.98	3286.15 ***	-1315.21 **	626.05	12.30
1984 EARNINGS	16262.68 ***	-739.36	3192.22 ***	1395.70 *	-329.33	4170.97 ***	-2190.56 ***	-217.82	11.47
1985 EARNINGS	17576.73 ***	-417.98	3868.23 ***	2458.31 ***	323.74	3748.85 ***	-3283.65 ***	-354.32	11.15
APPRENTICES									
1975 EARNINGS	6036.99 ***	-1123.69 **	1157.77 ***	612.77	769.07 *	1589.06 ***	-589.32	-578.75	6.67
1976 EARNINGS	6829.49 ***	-904.88	834.80 *	336.15	184.63	2818.50 ***	-877.56 *	-379.43	8.71
1977 EARNINGS	8811.49 ***	-870.36	1032.61 **	473.90	657.64	2907.25 ***	-1036.95 *	-772.96	7.88
1978 EARNINGS	10357.54 ***	-988.62	695.99	745.15	61.50	3288.80 ***	-313.81	-822.54	6.70
1979 EARNINGS	11555.72 ***	-696.96	1476.52 **	1409.00 *	72.83	3749.51 ***	-1159.79	59.46	6.89
1984 EARNINGS	15392.78 ***	-643.25	3481.96 ***	2261.16 *	705.55	5199.32 ***	-2467.46 *	-1033.98	7.10
1985 EARNINGS	17163.72 ***	144.50	4656.96 ***	2602.37 *	1316.64	4234.37 ***	-3866.86 ***	-950.01	7.02

Notes: *** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

TABLE 39

FEMALE EARNINGS REGRESSIONS
APPRENTICESHIP/EMPLOYER OJT
WEIGHTED

INDEPENDENT VARIABLES

DEPENDENT VARIABLE	INTERCEPT	MINORITY	EMPLOYER OJT/ APPRENTICE	HIGH SCHOOL PROGRAM ACADEMIC	HIGH SCHOOL PROGRAM VO-TECH	UNION	SOCIOECONOMIC STATUS LOW	SOCIOECONOMIC STATUS HIGH	F
EMPLOYER OJT									
1975 EARNINGS	3227.1 ***	-247.90	1033.36 ***	451.46 **	432.49	755.37 ***	-499.97 **	38.82	11.87
1976 EARNINGS	3587.49 ***	-614.16 **	792.66 ***	776.77 ***	654.50	1339.44 ***	-449.36	959.08 ***	11.38
1977 EARNINGS	3752.17 ***	436.80	1598.53 ***	324.46	279.98	1140.62 ***	-152.19	877.98 ***	12.73
1978 EARNINGS	4321.64 ***	854.80 **	1974.76 ***	418.70	-104.24	1109.64 ***	-227.01	1280.98 ***	9.92
1979 EARNINGS	4998.51 ***	532.68	1364.33 ***	907.82 **	30.95	1964.98 ***	-32.97	931.58 *	7.48
1984 EARNINGS	6073.23 ***	1980.94 ***	3172.60 ***	527.50	45.61	2216.31 ***	111.66	1691.74 ***	11.42
1985 EARNINGS	6727.91 ***	2342.18 ***	3601.90 ***	635.27	-250.02	2489.86 ***	-145.8	2411.88 ***	13.40
APPRENTICES									
1975 EARNINGS	3055.66 ***	-414.26	93.48	656.97 **	234.29	1264.84***	353.90	-412.34	4.01
1976 EARNINGS	3162.90 ***	22.83	83.45	746.41	592.82	1234.13 **	150.60	1506.91 **	2.62
1977 EARNINGS	3441.80 ***	1298.66 ***	1177.90 **	434.56	35.65	1745.06 ***	427.16	1144.97 **	6.56
1978 EARNINGS	4027.74 ***	2752.24 ***	2080.54 ***	-2083.93 ***	-728.45	3207.86 ***	910.11	863.04	11.03
1979 EARNINGS	5032.89 ***	2265.13 ***	1545.18	-1791.95 *	2355.78	5142.31 ***	1424.96	-1095.09	8.67
1984 EARNINGS	4363.77 ***	2853.67 ***	2427.24 **	1755.90	4660.95 **	1496.13 ***	1325.71	3193.53 **	3.81
1985 EARNINGS	4902.50 ***	3564.22 ***	4090.04 ***	1886.09	6585.37 ***	2791.37 **	304.54	2217.08	5.66

Notes: *** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

similarity of the union differentials for both males and females as between the Apprentice/Comparison equation and the employer OJT/Comparison equation.

At least among the males, there is some support for the hypothesis that the earnings differential of those who receive employer provided OJT should be higher than for the Apprentices in the early years when training is being undertaken, while the differential for the Apprentices is greater than the differential for employer provided OJT in the later years after the training has been completed.

Some further evidence on the earlier hypotheses can be obtained by looking behind the annual earnings at weeks worked, average hours worked, and hourly wages. Table 40 presents information on the number of weeks worked between the Spring of 1972 and the Fall of 1979 for Apprentices, those who received employer provided OJT and the Comparison group.

The first panel of the Table indicates the average number of weeks worked during the period separately for males and females for the three groups. For both the males and females the employer OJT group worked more weeks during the period than either the Apprentices or the Comparison group. The difference between the average number of weeks worked by the Apprentices and the employer OJT group is four weeks for the males and 14 weeks for the females.

The second panel of the Table indicates the regression adjusted differences in the number of weeks worked between the Apprentices and Comparisons and the employer OJT groups and the Comparisons. All of the estimated differences are highly significant. For both the males and females, the estimated differentials are greater for the employer OJT group than for the Apprentices relative to the Comparison group. In the case of the males the difference is seven weeks. In the case of the females the difference is 19.3 weeks, or more than a quarter of a year. Therefore, at least in the early years in the period, the employer OJT group worked more weeks than the Apprentices who in turn worked more weeks than the Comparison group.

Table 40

NUMBER OF WEEKS WORKED 1972-1979

Average Number of Weeks Worked 1972-1979
Cell Weighted

MALE	
Apprentice	303.78
Employer OJT	307.96
Comparison	281.49
FEMALE	
Apprentice	240.96
Employer OJT	254.92
Comparison	209.29

Average Number of Weeks Worked 1972-1979
Regression Adjusted
Cell Weighted

MALE	
Apprentice	18.5***
Employer OJT	25.5***
FEMALE	
Apprentice	23.5***
Employer OJT	42.8***

Table 41 presents the average hours worked per week and the average hourly wage for those who were working in the first week of February 1986. The results are presented separately for Apprentices, those who received employer OJT, and the Comparison group. The employer OJT group (both males and females) worked the same number of hours as the Comparisons. However, the female Apprentices worked one hour more and the male Apprentices worked one hour less than the other two groups. Therefore, there are no substantial differences in the number of hours worked per week.

More interesting are the average hourly wages of the various groups. For both males and females the average hourly wage of the employer OJT group is above that of the Comparison group. However, for both males and females, the average hourly wage in February 1986 of the Apprentices is above both that of the Comparison group and those who received employer provided OJT. The difference in wages between males and females is also significant. The average wage of the female Apprentices is below that of the male Comparison group members. Further, the differential between the Apprentices and those who received employer provided OJT is $0.28 for the females and $1.74 for the males. This is consistent with the earlier results which suggested that Apprenticeship and employer provided OJT produced similar differentials for the females.

Tables 42 and 43 present wage regressions for males and females respectively. Each Table includes a wage equation for the employer OJT group and the Comparison group as well as the earlier presented Apprentice/Comparison group equation for the convenience of the reader.

Among the males the intercept of the two equations is within a penny. Similarly, the minority coefficient (-1.20) is identical in the two equations and highly significant. The differentials for Apprenticeship and employer OJT are both positive and significant at the 1 percent level. The coefficient for the Apprentices is $2.24 and the differential between the Comparison group and the employer OJT group is $0.97 as of the first week of February 1986. The union differentials for both groups are also significant. The union differential for the Apprentices is $1.59 and for the employer OJT group $1.29. These results are consistent with the earnings differentials discussed earlier for 1985.

Table 41

AVERAGE HOURS AND WAGES
APPRENTICES/COMPARISONS
WORKING IN FIRST WEEK OF FEBRUARY 1986

	Average Wage[1]	Average Hours[2]
MALES		
Apprentices	$12.80	43.5
Employer OJT	$11.06	44.5
Comparisons	$10.11	44.5
FEMALES		
Apprentices	$8.67	38.8
Employer OJT	$8.39	37.8
Comparisons	$7.16	37.6

[1]Wages included only in the range $2.00-$32.50 per hour.

[2]Hours included only in the range 1-93 hours per week.

Table 42

WAGE REGRESSIONS
MALE APPRENTICE, EMPLOYER OJT/COMPARISONS
WORKING FIRST WEEK IN FEBRUARY 1986
(CELL WEIGHTED)

	Apprentice/ Comparison	Employer OJT/ Comparison
Intercept	$9.61 ***	$9.62 ***
Race - Minority	-1.20 **	-1.20 ***
Apprentice/Employer OJT	2.24 ***	0.97 ***
High School Program - Academic	0.03	0.09
High School Program - Vo-Tech	0.13	0.20
Union	1.59 ***	1.29 ***
SES - High	-1.25 **	-0.91 ***
SES - Low	-0.17	-0. 17
F	11.35	10.82

NOTES: * Denotes Significant at the 10 percent level.
** Denotes Significant at the 5 percent level.
*** Denotes Significant at the 1 percent level.

Table 43

WAGE REGRESSIONS
FEMALE APPRENTICE, EMPLOYER OJT/COMPARISONS
WORKING FIRST WEEK IN FEBRUARY 1986
(CELL WEIGHTED)

	Apprentice/ Comparison	Employer OJT/ Comparison
Intercept	$5.75 ***	$6.64 ***
Race - Minority	-0.29	-0.48 **
Apprentice/Employer OJT	1.11 **	0.91 ***
High School Program - Academic	2.47 ***	0.93 ***
High School Program - Vo-Tech	0.51	0.06
Union	1.16 ***	1.06 ***
SES - High	-0.38	-0.22
SES - Low	-0.99	0. 44
F	10.04	15.85

NOTES:
* Denotes Significant at the 10 percent level.
** Denotes Significant at the 5 percent level.
*** Denotes Significant at the 1 percent level.

Among the females, the results are not so consistent. The intercept for the employer OJT group is almost a dollar above that of the Apprentice/Comparison equation. However, the other coefficients differ as well. The differential for Apprenticeship is $1.11 for the females compared to $0.91 for the employer OJT group relative to the Comparison group. Similarly, the union differential is $1.16 for the female Apprentice/Comparison equation and $1.06 for the employer OJT/Comparison equation. Unlike the equations for the males, in both the Apprentice/Comparison and employer OJT/Comparison equations, the coefficient for an academic high school program relative to a general high school program is large and highly significant for the females while it is essentially inconsequential for the males. Again, the size of the Apprenticeship and employer OJT differentials as well as the union differentials are consistent with the earnings differentials for the females in the 1985 earnings equations presented earlier. Oddly, the 1985 earnings differentials for females who were in academic high school programs were not significant.

3.5 Cost and Benefits

Educational Costs

In addition to comparing the earnings differentials for the Apprentices, Comparisons and employer OJT groups, an analysis was also done of the cost of the education of the various groups as was done for the Apprentice/Comparison groups. These results are presented in Table 44. The cost of formal education is measured by tuition payments for the period 1972-1979 - years for which the survey collected cost information. As might be expected, the Table indicates that the expenditure on formal education on the part of those individuals who received employer provided OJT are lower than for either the Apprentices who took vocational or academic coursework in addition to their on-the-job training or the Comparisons who only received classroom vocational or academic classroom instruction. The employer OJT group expended $4,956.86 on tuition in the 1972-1979 period compared to $5,741 for the Comparison group and $5,323.06 for the Apprentices.

Since, as noted before, it is not possible to perform a standard cost/benefit analysis given incomplete cost data and quite large earnings differentials, it is possible to compare the

cost/earnings differential for the Apprentice and the employer OJT groups for 1985 versus the cost of education from 1972 through 1979. For the Apprentices, the cost of education for the period is $5,323.06 while the weighted average of the male and female 1985 earnings differential relative to the Comparison group is $4,161.70. The ratio is therefore .78. For the employer OJT group, the cost of education is $4,956.86 while the weighted average differential for males and females in 1985 in terms of earnings is $3,809.25. Therefore, the ratio is .77. The ratios of earnings differentials to education expenses are similar. The differences in earnings differential are, therefore, probably related to the amount of on-the-job training received.

Job Satisfaction

The level of satisfaction with their job as a whole is indicated in Table 45. Generally, the level of satisfaction is comparable for the employer OJT and Apprentice groups. However, the level of satisfaction/dissatisfaction is generally higher/lower than that of the Comparison group.

Table 44

AVERAGE COST OF SCHOOLING
CELL WEIGHTED
(VARIOUS YEARS)

	Apprentices	Comparisons	Employer OJT
First Year After Grad.	$767.57	$1,067.95	$1,021.25
Fall '73 - Summer '74	$1,305.71	$1,488.59	$1,349.97
Fall '74 - Summer '75	$838.44	$953.47	$919.86
Fall '75 - Summer '76	$1,067.85	$904.95	$819.51
Fall '76 - Summer '77	$385.23	$454.72	$287.99
Fall '77 - Summer '78	$457.65	$471.94	$280.98
Fall '78 - Summer '79	$500.61	$400.24	$276.64
Total, Grad to Summer '79	$5,323.06	$5,741.86	$4,956.86

Table 45

SATISFACTION WITH JOB AS A WHOLE
CELL WEIGHTED
(VARIOUS YEARS)
(PERCENT)

	1973	1974	1976	1979	1986
Very Satisfied					
Apprentices	26.0	29.7	28.5	32.6	24.7
Comparisons	21.4	24.0	21.5	25.5	17.5
Employer OJT	27.1	29.7	26.0	30.0	24.5
Satisfied					
Apprentices	54.7	53.4	55.9	58.5	61.5
Comparisons	58.3	56.1	57.5	58.5	61.8
Employer OJT	53.3	55.1	58.3	56.6	62.3
Dissatisfied					
Apprentices	11.2	13.3	12.2	7.7	12.1
Comparisons	12.2	15.6	15.4	13.1	13.6
Employer OJT	13.9	11.1	12.7	11.3	10.3
Very Dissatisfied					
Apprentices	7.8	3.6	3.4	1.2	1.2
Comparisons	8.2	4.3	5.6	2.9	4.5
Employer OJT	5.7	4.1	2.9	2.0	1.6
Don't Know					
Apprentices	0.4	0	0	0	0.6
Comparisons	0	0	0	0	2.7
Employer OJT	0.3	0	0	0	1.3
Total	100	100	100	100	100

4. Some Thoughts on The Effects of Apprenticeship Training

The issue considered in this section is what should be concluded from all of the foregoing material which has, essentially, been presented without comment. To give an abbreviated recount, the essence of the argument is that the groups selected for the analysis - the Apprentices, employer OJT group and the Comparison group - are quite comparable along a number of dimensions. Account was taken of the differential effects of union membership, an issue that was originally a major concern. The results can be summarized in the following Table.

Effects of Apprenticeship Training and Employer Provided OJT
Relative to the Comparison Group

	Apprentices	Employer OJT
1985 earnings		
Males	$4,656.96 ***	$3,868.57 ***
Females	$4,090.04 ***	$3,601.90 ***
1986 wage		
Males	$2.24 ***	$0.97 ***
Females	$1.11 ***	$0.91 ***

The usual response to this kind of analysis is a chorus chanting "selectivity bias." However, in this case, that response has to be examined. The basis of selectivity bias is that there are unaccounted-for differences in the characteristics of the treatment and comparison groups that are related to the outcome measures of interest. The most often mentioned characteristics are:

Background;

Education;

Experience;

Ability; and,

Motivation.

Background refers to differences in family status that make one group relatively more advantaged and presented with more opportunities. Generally this refers to the education of the parents, the occupation of the father, the household setting in which the individual grew up. These are the variables that are included in the socioeconomic status variable used in the matching.

Educational differences refer to differential types and amounts of human capital received by members of the various groups. An example is high school dropouts versus graduates - all individuals in this sample are high school graduates. Another would be differences in the type of high school program - a match variable in this study. Another is the amount and type of postsecondary education - controlled and quite similar for the various groups included in this study.

Experience usually refers to prior labor market experience which, in adult retraining programs, is often uncontrolled. However, in this case all the sample members were new high school graduates. It is true that employment experience while in high school was not measured and therefore, not included in this analysis. The literature does indicate that labor market experience while in school is related to subsequent employment and earnings. However, by 32 years of age, high school employment is no longer relevant.

Differences in aptitude and ability are also often mentioned as contributing to unaccounted-for differences in outcomes of training programs. It is unfortunate that aptitude test scores and the resulting ability index could not be used in this study. However, high school grades are a better indication than test scores of performance in college and not a bad measure of ability - including stereotyping of relative ability. Although not included as a match variable, the distributions were quite comparable, and the grades variables did not contribute to the regression results.

Motivation to succeed and persevere in a training program is also often mentioned as a basis of selectivity, and this is an issue to be dealt with. The first response to this is that the analysis was based on those who participated in an Apprenticeship or other program; the analysis was not limited to those who completed training. As indicated earlier, program completion was a fairly slippery concept, given the nature of the survey. Neither was the analysis limited to certifiably apprenticeable occupations. At the same time, it is not difficult to argue that

Apprenticeship programs have historically been selective, although not necessarily along lines that people normally have in mind when talking about selectivity bias.

The appropriate response to the selection bias argument is probably that the implicit assumption of this analysis is not that if all people went through an Apprenticeship program, they would experience the same results that the individuals in the Apprentice sample did. That is certainly not the case.

The appropriate issue is whether Apprenticeship could profitably be expanded. There are many more people who are motivated to participate in Apprenticeship than do participate. There is no reason to believe that their participation would not be beneficial to them and to society. In fact, the magnitude of the returns to participation in an Apprenticeship program are such that they suggest that economic rent is being earned by those that are selected to participate in the program. The fact that a traditional cost-benefit analysis could not be performed supports this contention.

A corollary to this conclusion which emanates from the results of the study is the desirability of including females, and particularly minority females, in any expansion of the Apprenticeship concept. The percentage differentials for females, as well as the positive coefficients on the minority female variable for even getting into the type of occupations that were covered in this study, provide at least indirect support for this position.

Finally, the analysis presented in this report is quite superficial relative to the degree of detail in the underlying data set. Yet the conclusions appear to be quite robust. The experience of the author has been that, in most evaluations of training programs, the results must be "teased" from the available data and arguments concerning the "appropriate" specification are of immense importance. In this case, the results came bounding out and nothing the analyst could do would suppress them. For anyone who would do more analysis of this data set, the considered advice of the author is that the data are unwieldy and very expensive to analyze, but the respondents are very well behaved.

APPENDIX A
WEIGHTED TABLES

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FUSWT BY _TRAIN

FUSWT(WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
> ZERO	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF LENGTH BY _TRAIN

LENGTH(LENGTH OF TRAINING) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
MISSING	0	0	0	0	0	0	0	150015	150015
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.42	13.42
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	
LT 1 MONTH	6875.65	10920.8	207743	18208.3	11801.4	3889.06	6052.26	0	265491
	0.61	0.98	18.58	1.63	1.06	0.35	0.54	0.00	23.75
	2.59	4.11	78.25	6.86	4.45	1.46	2.28	0.00	
	7.99	13.28	33.10	38.38	24.94	14.27	12.09	0.00	
GE 1 MO & LT 1 Y	20259	44635.2	204598	12875.9	25238.4	11303.4	31154.1	0	350064
	1.81	3.99	18.30	1.15	2.26	1.01	2.79	0.00	31.31
	5.79	12.75	58.45	3.68	7.21	3.23	8.90	0.00	
	23.54	54.26	32.80	27.14	53.34	41.48	62.22	0.00	
1 YEAR OR MORE	53329.8	22137.2	95915.1	3721.42	6764.05	7128.63	9382.97	0	198379
	4.77	1.98	8.58	0.33	0.61	0.64	0.84	0.00	17.74
	26.88	11.16	48.35	1.88	3.41	3.59	4.73	0.00	
	61.97	26.91	15.28	7.84	14.30	26.16	18.74	0.00	
MULTISP	647.584	602.821	847.909	0	0	0	339.768	0	2438.08
	0.06	0.05	0.08	0.00	0.00	0.00	0.03	0.00	0.22
	26.56	24.73	34.78	0.00	0.00	0.00	13.94	0.00	
	0.75	0.73	0.14	0.00	0.00	0.00	0.68	0.00	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.0	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF LENGTH BY _TRAIN

LENGTH(LENGTH OF TRAINING) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER ,NOT OJT	EGT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
BLANK	4940.35	3960.26	28436.8	1617.18	3232.5	767.883	3145.49	0	46196.5
	0.44	0.35	2.54	0.14	0.29	0.07	0.28	0.00	4.12
	10.72	8.60	61.66	3.51	7.01	1.67	6.82	0.00	
	5.74	4.82	4.53	3.41	6.83	2.82	6.28	0.00	
LESSTHSK	0	0	88038.8	11018.7	0	3835.69	0	0	102893
	0.00	0.00	7.87	0.99	0.00	0.34	0.00	0.00	9.20
	0.00	0.00	85.56	10.71	0.00	3.73	0.00	0.00	
	0.00	0.00	14.03	23.23	0.00	14.08	0.00	0.00	
DONT KNOW	0	0	1456.9	0	0	0	0	0	1456.9
	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.13
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	
OUTRANGE	0	0	553.094	0	276.223	326.358	0	0	1155.67
	0.00	0.00	0.05	0.00	0.02	0.03	0.00	0.00	0.10
	0.00	0.00	47.86	0.00	23.90	28.24	0.00	0.00	
	0.00	0.00	0.09	0.00	0.58	1.20	0.00	0.00	
TOTAL	85052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF COMPLETE BY _TRAIN

COMPLETE(COMPLETE PROGRAM) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI- LESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	EDT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
MISSING	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	150015 13.42 100.00	150015 13.42
YES	47810.4 4.26 7.66 55.56	62135.3 5.56 9.95 75.53	407355 36.44 65.26 64.91	31005.8 2.77 4.97 65.36	35314.3 3.16 5.66 74.64	11793.4 1.05 1.89 43.28	28835.9 2.58 4.62 57.59	0 0.00 0.00 0.00	624250 55.84
NO,NOT COMPLETE	9771.98 0.87 17.97 11.36	1778.36 0.16 3.27 2.16	30287.6 2.71 55.71 4.83	1676.98 0.15 3.08 3.53	3763.83 0.34 6.92 7.96	1310.54 0.12 2.41 4.81	5776.72 0.52 10.63 11.54	0 0.00 0.00 0.00	54366 4.86
NO,STILL ENROLL	23662.7 2.12 16.98 27.50	13367.1 1.20 9.59 16.25	73085.5 6.54 52.45 11.65	2202.51 0.20 1.58 4.64	5501.42 0.49 3.95 11.63	9210.1 0.82 6.61 33.80	12316.5 1.10 8.84 24.60	0 0.00 0.00 0.00	139346 12.46
TOTAL	86052.3 7.70	82262.3 7.36	627590 56.14	47441.5 4.24	47312.6 4.23	27251 2.44	50074.6 4.48	150015 13.42	1118000 100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF COMPLETE BY _TRAIN

COMPLETEC(COMPLETE PROGRAM) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER ,NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
BLANK	4412.55 0.39 9.72 5.13	3935.36 0.35 8.66 4.78	28553.6 2.55 62.87 4.55	1537.57 0.14 3.39 3.24	2733.07 0.24 6.02 5.78	1101.21 0.10 2.42 4.04	3145.49 0.28 6.93 6.28	0 0.00 0.00 0.00	45418.8 4.06
LEGITSKP	0 0.00 0.00 0.00	0 0.00 0.00 0.00	88038.8 7.87 85.56 14.03	11018.7 0.99 10.71 23.23	0 0.00 0.00 0.00	3835.69 0.34 3.73 14.08	0 0.00 0.00 0.00	0 0.00 0.00 0.00	102893 9.20
OUTRANGE	0 0.00 0.00 0.00	0 0.00 0.00 0.00	269.656 0.02 100.00 0.04	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	269.656 0.02
MULTRSP	394.684 0.04 27.39 0.46	1046.24 0.09 72.61 1.27	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1440.93 0.13
TOTAL	86052.3 7.70	82262.3 7.36	627590 56.14	47441.5 4.24	47312.6 4.23	27251 2.44	50074.6 4.48	150015 13.42	1118030 100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF USEFUL BY _TRAIN

USEFUL(USE TRAINING ON JOB) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER ,NOT OJT	FET PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
MISSING	0	0	0	0	0	0	0	150015	150015
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.42	13.42
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	
YES	71523.7	67490.6	520097	36913.4	21677.5	16656.4	17941.9	0	752601
	6.42	6.04	46.52	3.30	1.94	1.49	1.60	0.00	67.32
	9.54	8.97	69.11	4.90	2.88	2.21	2.38	0.00	
	83.47	82.04	82.87	77.81	45.82	61.12	35.83	0.00	
NO	8338.24	11370.1	82785.1	8874.78	14701.5	8986.11	25282.7	0	160341
	0.75	1.02	7.40	0.79	1.32	0.80	2.26	0.00	14.34
	5.20	7.09	51.63	5.53	9.17	5.60	15.77	0.00	
	9.69	13.82	13.19	18.71	31.08	32.98	50.49	0.00	
BLANK	5425.6	3401.57	24371.3	1653.32	6840.72	1608.42	3486.05	0	46787
	0.49	0.30	2.18	0.15	0.61	0.14	0.31	0.00	4.18
	11.60	7.27	52.09	3.53	14.62	3.44	7.45	0.00	
	6.31	4.14	3.88	3.48	14.46	5.90	6.96	0.00	
MULTRSP	0	0	336.358	0	0	0	0	0	336.358
	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	
LEGITSAP	464.775	0	0	0	4090.78	0	3363.93	0	7919.49
	0.04	0.00	0.00	0.00	0.37	0.00	0.30	0.00	0.71
	5.87	0.00	0.00	0.00	51.65	0.00	42.48	0.00	
	0.54	0.00	0.00	0.00	8.65	0.00	6.72	0.00	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.46	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF F13A BY _TRAIN

F13A(WORKING FOR PAY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	EST PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	73079.7	60900	507615	41882.6	34154.3	18098.7	34330.5	102897	872958
	6.57	5.47	45.60	3.76	3.07	1.63	3.08	9.24	78.43
	8.37	6.98	58.15	4.80	3.91	2.07	3.93	11.79	
	84.92	75.14	81.24	88.28	72.76	67.05	68.96	68.59	
NO	12972.6	19842.2	116897	5296.52	12785.3	8893.26	15455.9	46394.4	238538
	1.17	1.78	10.50	0.48	1.15	0.80	1.39	4.17	21.43
	5.44	8.32	49.01	2.22	5.36	3.73	6.48	19.45	
	15.08	24.48	18.71	11.16	27.24	32.95	31.04	30.93	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF PI3D BY _TRAIN

PI3D(TAKING GRAD, PROF COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	127.935	419.251	1659.71	0	0	0	0	208.987	2415.78
	0.01	0.04	0.15	0.00	0.00	0.00	0.00	0.02	0.22
	5.29	17.35	68.70	0.00	0.00	0.00	0.00	8.65	
	0.15	0.52	0.27	0.00	0.00	0.00	0.00	0.14	
NO	85524.5	80322.9	622853	47179.1	46939.6	26992	49786.4	149082	1109080
	7.72	7.22	55.96	4.24	4.22	2.42	4.47	13.39	99.64
	7.75	7.24	56.16	4.25	4.23	2.43	4.49	13.44	
	99.85	99.10	99.69	99.45	100.00	100.00	100.00	99.38	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.49	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3C BY _TRAIN

FI3C(TAKING ACADEMIC COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	1730.35	6547.17	24982.5	1682.2	1662.41	1076.38	3524.84	6224.31	47430.2
	0.16	0.59	2.24	0.15	0.15	0.10	0.32	0.56	4.26
	3.65	13.80	52.67	3.55	3.50	2.27	7.43	13.12	
	2.01	8.08	4.00	3.55	3.54	3.99	7.08	4.15	
NO	84322	74195	599530	45496.9	45277.1	25915.6	46261.6	143067	1064065
	7.58	6.67	53.86	4.09	4.07	2.33	4.16	12.85	95.60
	7.92	6.97	56.34	4.28	4.26	2.44	4.35	13.45	
	97.99	91.54	95.95	95.90	96.46	96.01	92.92	95.37	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3B BY _TRAIN

FI3B(TAKING VOC, TECH COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	4183.47	4035.41	22203.5	1262.23	1831.51	762.58	1415.91	3509.13	39203.8
	0.36	0.36	1.99	0.11	0.16	0.07	0.13	0.32	3.52
	10.67	10.29	56.64	3.22	4.67	1.95	3.61	8.95	
	4.80	4.98	3.55	2.66	3.90	2.83	2.84	2.34	
NO	81668.8	76706.7	602309	45916.9	45108.1	26229.4	49370.5	145782	1072292
	7.36	6.89	54.11	4.13	4.05	2.36	4.35	13.10	96.33
	7.63	7.15	56.17	4.28	4.21	2.45	4.51	13.60	
	95.14	94.64	96.40	96.79	96.10	97.17	97.16	97.18	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.39
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.36	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FIBE BY _TRAIN

FIBE(APPRENTICE, GOVT TRNG PROG 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	2219.72	948.456	2626.8	491.611	376.661	0	270.486	0	6933.74
	0.20	0.09	0.24	0.04	0.03	0.00	0.02	0.00	0.62
	32.01	13.66	37.88	7.09	5.43	0.00	3.90	0.00	
	2.58	1.17	0.42	1.04	0.80	0.00	0.54	0.00	
NO	83832.4	74793.7	621985	46687.5	46562.9	26992	49516	149291	1104562
	7.53	7.17	55.87	4.19	4.18	2.42	4.45	13.41	99.23
	7.59	7.22	56.30	4.23	4.22	2.44	4.48	13.52	
	97.42	98.45	99.53	98.41	99.20	100.00	99.46	99.52	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3F BY _TRAIN

FI3F(ACTIVE DUTY ARMED FORCES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	794.479	13379.3	1906.33	0	207.332	218.573	72.301	278.297	16856.6
	0.07	1.20	0.17	0.00	0.02	0.02	0.01	0.03	1.51
	4.71	79.37	11.31	0.00	1.23	1.30	0.43	1.65	
	0.92	16.51	0.31	0.00	0.44	0.81	0.15	0.19	
NO	85257.8	67362.9	622605	47179.1	46732.2	26773.4	49714.1	149013	1094639
	7.66	6.05	55.93	4.24	4.20	2.41	4.47	13.39	98.34
	7.79	6.15	56.88	4.31	4.27	2.45	4.54	13.61	
	99.08	83.11	99.69	99.45	99.56	99.19	99.85	99.33	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3G BY _TRAIN

FI3G(KEEPING HOUSE 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER ,NOT OJT	EET PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	3757.44	6445.67	87525.3	4890.49	9418.26	5005.37	11168	35090.6	163641
	0.34	0.58	7.89	0.44	0.85	0.45	1.00	3.15	14.70
	2.32	3.94	53.67	2.99	5.76	3.06	6.82	21.44	
	4.41	7.95	14.06	10.31	20.06	18.54	22.43	23.39	
NO	82254.9	74296.5	536687	42288.6	37521.3	21986.6	39618.4	114201	947854
	7.39	6.67	48.22	3.80	3.37	1.98	3.47	10.26	85.15
	8.68	7.84	56.62	4.46	3.96	2.32	4.07	12.05	
	95.59	91.67	85.90	89.14	79.94	81.46	77.57	76.13	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4934

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FISH BY _TRAIN

FISHCON TEMPORARY LAYOFF 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	3671.7	2427.57	10489.1	360.159	833.905	879.825	548.465	3717.06	22927.8
	0.33	0.22	0.94	0.03	0.07	0.08	0.05	0.33	2.06
	16.01	10.59	45.75	1.57	3.64	3.84	2.39	16.21	
	4.27	3.00	1.68	0.76	1.78	3.26	1.10	2.48	
NO	82380.6	78314.6	614023	46819	46105.7	26112.2	49238	145574	1089568
	7.40	7.04	55.16	4.21	4.14	2.35	4.42	13.08	97.80
	7.57	7.19	56.41	4.30	4.24	2.40	4.52	13.37	
	95.73	96.62	98.27	98.69	98.22	96.74	98.90	97.04	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.49	
TOTAL	86052.3	81051.9	624617	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3I BY _TRAIN

FI3I(LOOKING FOR WORK 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	4970.66	5553.69	32426	2032.31	4312.14	1088.3	2226.12	8334.43	60943.7
	0.45	0.50	2.91	0.18	0.39	0.10	0.20	0.75	5.48
	8.16	9.11	53.21	3.33	7.08	1.79	3.65	13.69	
	5.78	6.85	5.19	4.28	9.19	4.03	4.47	5.56	
NO	81081.7	75188.5	592086	45146.8	42627.4	25903.7	47560.3	140957	1050552
	7.28	6.75	53.19	4.06	3.83	2.33	4.27	12.66	94.38
	7.72	7.16	56.36	4.30	4.06	2.47	4.53	13.42	
	94.22	92.77	94.76	95.16	90.91	95.97	95.53	93.96	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.35	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.49	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3J BY _TRAIN

FI3J(BREAK FROM WORK, SCHOOL 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	320.169	1545.66	6884.05	213.394	907.196	967.079	693.363	1625.74	13156.7
	0.03	0.14	0.62	0.02	0.08	0.09	0.06	0.15	1.18
	2.43	11.75	52.32	1.62	6.90	7.35	5.27	12.36	
	0.37	1.91	1.10	0.45	1.93	3.58	1.39	1.09	
NO	85732.1	79196.5	617628	46965.7	46032.4	26024.9	49093.1	147666	1098339
	7.70	7.11	55.49	4.22	4.14	2.34	4.41	13.27	98.67
	7.81	7.21	56.23	4.28	4.19	2.37	4.47	13.44	
	99.63	97.71	98.85	99.00	98.07	96.42	98.61	98.43	
LEGITSKP	0	309.699	304.435	262.373	0	0	0	723.876	1600.38
	0.00	0.02	0.03	0.02	0.00	0.00	0.00	0.07	0.14
	0.00	19.35	19.02	16.39	0.00	0.00	0.00	45.23	
	0.00	0.38	0.05	0.55	0.00	0.00	0.00	0.48	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF FI3K BY _TRAIN

FI3K(OTHER ACTIVITY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI CESSHIP	ARMED FORCES	OJT	EMPLOYER ,NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	6223.3 0.56 8.02 7.23	2696.85 0.24 3.47 3.33	41154.1 3.70 53.01 6.59	1960.75 0.18 2.53 4.13	3701.21 0.33 4.77 7.89	3573.29 0.32 4.60 13.24	4659.63 0.42 6.00 9.36	13659.1 1.23 17.60 9.11	77629 6.97
NO	79829 7.17 7.72 92.77	78045.3 7.01 7.55 96.29	583358 52.41 56.42 93.36	45219.4 4.06 4.37 95.31	43238.4 3.88 4.18 92.11	23418.7 2.10 2.27 86.76	45126.8 4.05 4.36 90.64	135632 12.19 13.12 90.41	1033866 92.98
LEGITSKP	0 0.00 0.00 0.00	309.699 0.03 19.35 0.38	304.435 0.03 19.02 0.05	262.373 0.02 16.39 0.55	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	723.876 0.07 45.23 0.48	1600.38 0.14
TOTAL	86052.3 7.73	81051.9 7.28	624817 56.13	47441.5 4.26	46939.6 4.22	26992 2.42	49786.4 4.47	150015 13.48	1113096 100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF VAR1626 BY _TRAIN

VAR1626(CSEX) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	EDT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
MALE	77670.6	71339.8	273987	21906.7	15352.5	11998.6	15862.9	60070.7	548189
	6.95	6.38	24.51	1.96	1.37	1.07	1.42	5.37	49.03
	14.17	13.01	49.98	4.00	2.80	2.19	2.89	10.96	
	90.26	86.72	43.66	46.18	32.45	44.03	31.68	40.04	
FEMALE	8361.72	10922.5	353264	25534.8	31960.1	15252.4	33952.2	89944.6	569232
	0.75	0.98	31.60	2.28	2.86	1.36	3.04	8.05	50.92
	1.47	1.92	62.06	4.49	5.61	2.68	5.96	15.80	
	9.74	13.28	56.29	53.82	67.55	55.97	67.80	59.96	
LE,ITSKP	0	0	316.978	0	0	0	259.522	0	578.5
	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.05
	0.00	0.00	55.14	0.00	0.00	0.00	44.86	0.00	
	0.00	0.00	0.05	0.00	0.00	0.00	0.52	0.00	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF _TRAIN BY VAR1625

_TRAIN(TYPE OF TRAINING) VAR1625(GRADE)

FREQUENCY PERCENT ROW PCT COL PCT	AMERICAN INDIAN	BLACK	MEXICAN AMERICAN	PUERTO RICAN	LATIN-AMERICAN	ASIAN-AMERICAN	WHITE	OTHER	UNCLASSIFIED	TOTAL
APPRENTICESHIP	1393.59	7552.29	2637.51	0	183.648	824.932	69905.6	2841.57	713.197	86052.3
	0.12	0.68	0.24	0.00	0.02	0.07	6.25	0.25	0.06	7.70
	1.62	8.78	3.07	0.00	0.21	0.96	81.24	3.30	0.83	
	10.42	7.26	9.52	0.00	2.66	11.79	7.62	9.13	8.68	
ARMED FORCES	697.668	11248.2	1771.92	160.717	195.295	797.584	63822.8	2160.69	1407.48	82262.3
	0.06	1.01	0.16	0.01	0.02	0.07	5.71	0.19	0.13	7.36
	0.35	13.67	2.15	0.20	0.24	0.97	77.58	2.63	1.71	
	5.42	10.82	6.40	5.46	2.83	11.40	6.96	6.94	17.14	
OJT	6640.11	55826.4	15247.6	1410.02	4246.75	3451.44	520730	16815.7	3221.72	627590
	0.59	4.99	1.36	0.13	0.38	0.31	46.56	1.50	0.29	56.14
	1.06	8.90	2.43	0.22	0.68	0.55	82.97	2.68	0.51	
	51.54	53.68	55.06	47.88	61.56	49.32	56.77	54.05	39.23	
EMPLOYER,NOT OJT	1271.96	3436.71	906.966	0	799.631	898.86	38158.6	1330.29	638.4	47461.5
	0.11	0.31	0.08	0.00	0.07	0.08	3.41	0.12	0.06	4.24
	2.68	7.24	1.91	0.00	1.69	1.89	80.43	2.80	1.35	
	9.87	3.30	3.28	0.00	11.59	12.84	4.16	4.28	7.77	
TOTAL	12883.8	103996	27692.3	2944.87	6899.04	6997.77	917261	31112.1	9212.64	111800
	1.15	9.30	2.48	0.26	0.62	0.63	82.04	2.78	0.73	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF _TRAIN BY VAR1625

TRAIN(TYPE OF TRAINING) VAR1625(SPACE)

FREQUENCY PERCENT ROW PCT COL PCT	AMERICAN INDIAN	BLACK	MEXICAN AMERICAN	PUERTO RICAN	LATIN-AMERICAN	ASIAN-AMERICAN	WHITE	OTHER	UNCLASSIFIED	TOTAL
PGT PROGRAM	130.378	11420.7	1770.04	766.93	0	302.711	31001.6	1708	210.082	47312.6
	0.01	1.02	0.16	0.07	0.00	0.03	2.77	0.15	0.02	4.23
	0.28	24.14	3.74	1.63	0.00	0.64	65.53	3.61	0.44	
	1.01	10.98	6.39	26.11	0.00	4.33	3.38	5.49	2.56	
OTHER PROGRAM	0	1283.76	624.231	87.34	0	155.418	23814.5	669.282	616.415	27251
	0.00	0.11	0.06	0.01	0.00	0.01	2.13	0.06	0.06	2.44
	0.00	4.71	2.29	0.32	0.00	0.57	87.39	2.46	2.26	
	0.00	1.23	2.25	2.97	0.00	2.22	2.60	2.15	7.51	
PERSONAL	281.915	1895.14	667.185	0	340.767	220.328	43718.3	2107.9	843.041	50074.6
	0.03	0.17	0.06	0.00	0.03	0.02	3.91	0.19	0.08	4.48
	0.56	3.78	1.33	0.00	0.68	0.44	87.31	4.21	1.68	
	2.19	1.82	2.41	0.00	4.94	3.15	4.77	6.78	10.27	
OTHER	2468.12	11332.6	4066.87	517.863	1132.95	346.494	126110	3478.59	562.313	150015
	0.22	1.01	0.36	0.05	0.10	0.03	11.28	0.31	0.05	13.42
	1.65	7.55	2.71	0.35	0.76	0.23	84.06	2.32	0.37	
	19.16	10.90	14.69	17.59	16.42	4.95	13.75	11.18	6.85	
TOTAL	12883.8	103996	27692.3	2944.87	6899.04	6997.77	917261	31112.1	8212.64	1118000
	1.15	9.30	2.48	0.26	0.62	0.63	82.04	2.78	0.73	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF EDATT86 BY _TRAIN

EDATT86(EDATT86-EDUC. ATTAINMENT AS OF 1986) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI-CESHIP	ARMED FORCES	OJT	EMPLOYER-NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
SOME HS	0	0	1685.1	0	66.946	0	520.572	787.033	3059.65
	0.00	0.00	0.15	0.00	0.01	0.00	0.05	0.07	0.27
	0.00	0.00	55.07	0.00	2.19	0.00	17.01	25.72	
	0.00	0.00	0.27	0.00	0.14	0.00	1.05	0.52	
HS DIPLOMA	2698.54	2119.67	23075	2096.25	2225.54	371.812	2547.32	2255.82	37390
	0.24	0.19	2.07	0.19	0.20	0.03	0.23	0.20	3.36
	7.22	5.67	61.71	5.61	5.95	0.99	6.81	6.03	
	3.14	2.62	3.69	4.42	4.74	1.38	5.12	1.50	
2+ YRS VOC	17234.7	11675.4	89695.5	10444.6	10331	3857.73	5891.64	28457.1	177788
	1.55	1.05	8.08	0.94	0.93	0.35	0.53	2.56	15.97
	9.69	6.57	50.46	5.87	5.81	2.17	3.31	16.01	
	20.03	14.40	14.39	22.02	22.01	14.29	11.83	18.97	
SOME COLLEGE	15081.2	33563.9	164664	14668	14144.2	5895.49	13427.2	62319.2	323763
	1.35	3.02	14.79	1.32	1.27	0.53	1.21	5.60	29.09
	4.66	10.37	50.86	4.53	4.37	1.82	4.15	19.25	
	17.53	41.41	26.35	30.92	30.13	21.84	26.97	41.54	
COLLEGE GRAD	554.267	3127.89	7116.56	737.07	428.477	0	643.059	2205.28	14812.6
	0.05	0.28	0.64	0.07	0.04	0.00	0.06	0.20	1.33
	3.74	21.12	48.04	4.98	2.89	0.00	4.34	14.89	
	0.64	3.86	1.14	1.55	0.91	0.00	1.29	1.47	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26942	49786.4	150315	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF EDATT86 BY _TRAIN

EDATT86(EDATT86-EDUC. ATTAINMENT AS OF 1986) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
MASTER'S DEG	0	115.891	953.37	0	59.856	0	0	0	1129.03
	0.00	0.01	0.09	0.00	0.01	0.00	0.00	0.00	0.10
	0.00	10.26	84.44	0.00	5.30	0.00	0.00	0.00	
	0.00	0.14	0.15	0.00	0.13	0.00	0.00	0.00	
PHD,MD,ETC.	0	0	444.487	213.394	0	0	0	0	657.881
	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.06
	0.00	0.00	67.56	32.44	0.00	0.00	0.00	0.00	
	0.00	0.00	0.07	0.45	0.00	0.00	0.00	0.00	
BLANK	1101.62	1661.99	4377.66	274.109	660.991	159.194	336.337	1374.51	10026.4
	0.10	0.15	0.39	0.02	0.06	0.01	0.04	0.12	0.90
	10.99	16.58	43.66	2.73	6.79	1.59	3.95	13.71	
	1.28	2.05	0.70	0.58	1.45	0.59	0.80	0.92	
LEGITSKP	49382	28787.2	332605	19008.1	19002.5	16707.8	26360.3	52616.4	544469
	4.44	2.59	29.88	1.71	1.71	1.50	2.37	4.73	48.91
	9.07	5.29	61.09	3.49	3.49	3.07	4.84	9.66	
	57.39	35.52	53.23	40.07	40.48	61.90	52.95	35.07	
TOTAL	86052.3	81051.9	624917	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.48	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
***** WEIGHTED *****

TABLE OF MARSTAT BY _TRAIN

MARSTAT(MARSTAT - MARITAL STATUS) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER ,NOT OJT	EDT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
SINGLE	9790.75	12334.8	80519	5680.29	8499.97	3835.18	7526.95	21741.9	148619
	0.79	1.08	7.23	0.51	0.76	0.34	0.68	1.95	13.35
	5.91	8.10	54.18	3.82	5.72	2.58	5.06	14.63	
	10.20	14.85	12.89	11.97	18.11	14.21	15.12	14.49	
MARRIED	64491.5	57607.4	442841	35122.4	25969	19675.6	34027.2	107636	787370
	5.79	5.18	39.78	3.16	2.33	1.77	3.06	9.67	70.74
	8.19	7.32	56.24	4.46	3.30	2.50	4.32	13.67	
	74.94	71.07	70.88	74.03	55.32	72.89	68.35	71.75	
DIV,WID,SEP	9450.02	9667.41	76510.7	5992.04	10436.5	2458.76	5167.71	13664.1	131347
	0.76	0.78	6.87	0.54	0.94	0.22	0.46	1.23	11.80
	6.43	6.60	58.25	4.56	7.95	1.87	3.93	10.40	
	9.82	10.69	12.25	12.63	22.23	9.11	10.39	9.11	
LIVING W/SOMEONE	3624.65	2503.04	22540.2	646.742	1950.06	978.345	2996.9	5913.74	41353.7
	0.34	0.22	2.03	0.06	0.18	0.09	0.27	0.53	3.72
	9.25	6.05	54.51	1.56	4.72	2.37	7.25	14.30	
	4.44	3.09	3.61	1.36	4.15	3.62	6.02	3.94	
(UNKNOWN STATUS) 9	505.397	239.191	2406.02	0	83.958	44.1	67.69	1059.87	4406.22
	0.05	0.02	0.22	0.00	0.01	0.00	0.01	0.10	0.40
	11.47	5.43	54.61	0.00	1.91	1.00	1.54	24.05	
	0.59	0.30	0.39	0.00	0.18	0.16	0.14	0.71	
TOTAL	86052.3	81051.9	624817	47441.5	46939.6	26992	49786.4	150015	1113096
	7.73	7.28	56.13	4.26	4.22	2.42	4.47	13.49	100.00

FREQUENCY MISSING = 4904

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

TABLE OF VAR396 BY _TRAIN

VAR396(FATHER'S EDUCATION) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
DOESN'T APPLY	0	1735.09	13582.9	564.044	765.263	1347.05	274.547	2961.22	21230.1
	0.00	0.16	1.21	0.05	0.07	0.12	0.02	0.26	1.90
	0.00	8.17	63.98	2.66	3.60	6.34	1.29	13.95	
	0.00	2.11	2.16	1.19	1.62	4.94	0.55	1.97	
NOT FINISH H.S.	18115	21812.9	147451	8407.15	12342.2	4889.52	10665.4	32668.7	256352
	1.62	1.95	13.19	0.75	1.10	0.44	0.95	2.92	22.93
	7.07	8.51	57.52	3.28	4.81	1.91	4.16	12.74	
	21.05	26.52	23.49	17.72	26.09	17.94	21.30	21.78	
HS GRAD	19325.5	16264.6	139345	12869.1	9519.81	6131.5	12818.5	39845.3	256119
	1.73	1.45	12.46	1.15	0.85	0.55	1.15	3.56	22.91
	7.55	6.35	54.41	5.02	3.72	2.39	5.00	15.56	
	22.46	19.77	22.20	27.13	20.12	22.50	25.60	26.56	
ADULT ED PROG	561.902	1358.55	7747.7	709.983	827.685	210.705	0	1931.14	13347.7
	0.05	0.12	0.69	0.06	0.07	0.02	0.00	0.17	1.19
	4.21	10.18	58.05	5.32	6.20	1.58	0.00	14.47	
	0.65	1.65	1.23	1.50	1.75	0.77	0.00	1.29	
BUSINESS TRD SCH	2985.13	4307.17	19333.3	1173.72	1418.07	1290.72	1251.15	2913.02	34672.3
	0.27	0.39	1.73	0.10	0.13	0.12	0.11	0.26	3.10
	8.61	12.42	55.76	3.39	4.09	3.72	3.61	8.40	
	3.47	5.24	3.08	2.47	3.00	4.74	2.50	1.94	
SOME COLLEGE	5572.71	3551.77	43078.7	2982.78	3364.27	1884.62	3350.13	10299	74084
	0.50	0.32	3.85	0.27	0.30	0.17	0.30	0.92	6.63
	7.52	4.79	58.15	4.03	4.54	2.54	4.52	13.90	
	6.48	4.32	6.86	6.29	7.11	6.92	6.69	6.87	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118999
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

TABLE OF VAR396 BY _TRAIN

VAR396(FATHER'S EDUCATION) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	EIT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
COLLEGE GRAD	2446.26	1719.75	30806.5	2793.75	908.653	2202.01	3622.2	7767.54	52266.6
	0.22	0.15	2.76	0.25	0.08	0.20	0.32	0.69	4.68
	4.68	3.29	58.94	5.35	1.74	4.21	6.93	14.86	
	2.84	2.09	4.91	5.89	1.92	8.08	7.23	5.18	
SOME GRAD, PROF	1481.78	1317.85	6124.83	678.832	1096.03	0	1499.47	575.24	12773
	0.13	0.12	0.55	0.06	0.10	0.00	0.13	0.05	1.14
	11.60	10.32	47.95	5.31	8.58	0.00	11.73	4.50	
	1.72	1.60	0.98	1.43	2.32	0.00	2.99	0.38	
GRAD, PROF DEGR	1438.06	1028.45	11561.3	359.244	456.542	0	302.075	3356.26	18501.9
	0.13	0.09	1.03	0.03	0.04	0.00	0.03	0.30	1.65
	7.77	5.56	62.49	1.94	2.47	0.00	1.63	18.14	
	1.67	1.25	1.84	0.76	0.96	0.00	0.60	2.24	
BLANK	11996.8	4394.91	51226.4	4786.73	4926.02	1535.88	4664.62	11339.2	94870.5
	1.07	0.39	4.58	0.43	0.44	0.14	0.42	1.01	8.49
	12.65	4.63	54.00	5.05	5.19	1.62	4.92	11.95	
	13.94	5.34	8.16	10.09	10.41	5.64	9.32	7.56	
LEGITSEP	22129.1	24771.3	157332	12116.2	11688	7758.97	11627.4	36358.7	283782
	1.98	2.22	14.07	1.08	1.05	0.69	1.04	3.25	25.38
	7.80	8.73	55.44	4.27	4.12	2.73	4.10	12.81	
	25.72	30.11	25.07	25.54	24.70	28.47	23.22	24.24	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

TABLE OF VAR397 BY _TRAIN

VAR397(MOTHER'S EDUCATION) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER(NOT OJT)	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
DOESN'T APPLY	377.45	1105.83	11331.9	473.774	1380.43	467.08	539.167	1130.63	16806.3
	0.03	0.10	1.01	0.04	0.12	0.04	0.05	0.10	1.50
	2.25	6.58	67.43	2.82	8.21	2.78	3.21	6.73	
	0.44	1.34	1.81	1.00	2.92	1.71	1.08	0.75	
NOT FINISH H.S.	14491.2	19469.6	125336	6504.77	9550.79	4504.94	19903.21	25973.5	215734
	1.30	1.74	11.21	0.58	0.85	0.40	0.89	2.32	19.30
	6.72	9.02	58.10	3.02	4.43	2.09	4.59	12.04	
	16.84	23.67	19.97	13.71	20.19	16.53	19.78	17.31	
HS GRAD	27525.2	22867.4	194588	15048.4	12763.2	7519.25	18424	52138.7	350874
	2.46	2.05	17.41	1.35	1.14	0.67	1.65	4.66	31.38
	7.84	6.52	55.46	4.29	3.64	2.14	5.25	14.86	
	31.99	27.80	31.01	31.72	26.98	27.59	36.79	34.76	
ADULT ED PROG	1675.87	1230.5	12349.9	1231.48	779.017	0	1225.326	1043.16	18535.2
	0.15	0.11	1.10	0.11	0.07	0.00	0.02	0.09	1.66
	9.04	6.64	66.63	6.64	4.20	0.00	1.22	5.63	
	1.95	1.50	1.97	2.60	1.65	0.00	0.45	0.70	
BUSINESS TRD SCH	2049.26	2922.76	24612.5	1820.95	1682.03	1382.17	1362.71	6515.47	42347.9
	0.18	0.26	2.20	0.16	0.15	0.12	0.12	0.58	3.79
	4.84	6.90	58.12	4.30	3.97	3.26	3.22	15.39	
	2.38	3.55	3.92	3.84	3.56	5.07	2.72	4.34	
SOME COLLEGE	3127.03	1720.8	32336.7	3268.14	2054.57	1587.38	2407.74	7893.15	54395.5
	0.28	0.15	2.89	0.29	0.18	0.14	0.22	0.71	4.87
	5.75	3.16	59.45	6.01	3.78	2.92	4.43	14.51	
	3.63	2.09	5.15	6.89	4.34	5.83	4.81	5.26	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

TABLE OF VAR397 BY _TRAIN

VAR397(MOTHER'S EDUCATION) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
COLLEGE GRAD	2401.7	2650.74	13627.9	1535.95	1356.41	1028.53	529.425	4873.37	28004.1
	0.21	0.24	1.22	0.14	0.12	0.09	0.05	0.44	2.50
	8.58	9.47	48.66	5.48	4.84	3.67	1.89	17.40	
	2.79	3.22	2.17	3.24	2.87	3.77	1.06	3.25	
SOME GRAD,PROF	1952.07	0	6693.87	201.726	210.107	523.423	1067.27	611.58	11260
	0.17	0.00	0.60	0.02	0.02	0.05	0.10	0.05	1.01
	17.34	0.00	59.45	1.79	1.87	4.65	9.48	5.43	
	2.27	0.00	1.07	0.43	0.44	1.92	2.13	0.41	
GRAD,PROF DEGR	1511.65	1099.05	3768.55	0	1242.26	115.094	0	2364.81	10101.4
	0.14	0.10	0.34	0.00	0.11	0.01	0.00	0.21	0.90
	14.96	10.88	37.31	0.00	12.30	1.14	0.00	23.41	
	1.76	1.34	0.60	0.00	2.63	0.42	0.00	1.58	
BLANK	8811.76	4424.24	45611.8	5240.1	4605.8	2364.14	3988.28	11112.3	86158.4
	0.79	0.40	4.08	0.47	0.41	0.21	0.36	0.99	7.71
	10.23	5.14	52.94	6.08	5.35	2.74	4.63	12.90	
	10.24	5.38	7.27	11.05	9.73	8.68	7.96	7.41	
LEGITSKP	22129.1	24771.3	157332	12116.2	11688	7758.97	11627.4	36358.7	283782
	1.98	2.22	14.07	1.08	1.05	0.69	1.04	3.25	25.38
	7.80	8.73	55.44	4.27	4.12	2.73	4.10	12.81	
	25.72	30.11	25.07	25.54	24.70	28.47	23.22	24.24	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

TABLE OF VAR1070 BY _TRAIN

VAR1070(SES) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	EST PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
LOW	18175.6	24423.6	180181	10560.9	20834.7	4615.99	10700.5	39512.1	309005
	1.63	2.18	16.12	0.94	1.86	0.41	0.96	3.53	27.64
	5.88	7.90	58.31	3.42	6.74	1.49	3.46	12.79	
	21.12	29.69	28.71	22.26	44.04	16.94	21.37	26.34	
MEDIUM	51017	47380.2	347822	24993.5	21052.9	17486.4	31498.4	83851.3	625102
	4.56	4.24	31.11	2.24	1.88	1.56	2.82	7.50	55.91
	8.16	7.58	55.64	4.00	3.37	2.80	5.04	13.41	
	59.29	57.60	55.42	52.68	44.50	64.17	62.90	55.90	
HIGH	15526.4	8227.82	94003	10838.8	15078.38	4401.34	6743.72	25712.7	170532
	1.39	0.74	8.41	0.97	0.45	0.39	0.60	2.30	15.25
	9.10	4.82	55.12	6.36	2.98	2.58	3.95	15.08	
	18.04	10.00	14.98	22.85	10.73	16.15	13.47	17.14	
UNCLASSIFIED	1333.43	2230.63	5583.14	1048.36	346.616	747.204	1131.98	939.227	13360.6
	0.12	0.20	0.50	0.09	0.03	0.07	0.10	0.08	1.20
	9.98	16.70	41.79	7.85	2.59	5.59	8.47	7.03	
	1.55	2.71	0.89	2.21	0.73	2.74	2.26	0.63	
TOTAL	86052.3	82262.3	627590	47441.5	47312.6	27251	50074.6	150015	1118000
	7.70	7.36	56.14	4.24	4.23	2.44	4.48	13.42	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

TABLE OF VAR1073 BY _TRAIN

VAR1073(HSEGM) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTI CESHIP	ARMED FORCES	OJT	EMPLOYER NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
GENERAL	36629.8 3.28 8.15 42.57	35287 3.16 7.85 42.90	252239 22.56 56.13 40.19	17645.7 1.58 3.93 37.19	17288.8 1.55 3.85 36.54	12473.4 1.12 2.78 45.77	17311.2 1.55 3.85 34.57	60476.8 5.41 13.46 40.31	449352 40.19
ACAD	26786.9 2.40 8.62 31.13	24783.9 2.22 7.97 30.13	161065 14.41 51.81 25.66	15693.7 1.40 5.05 33.08	12295.8 1.10 3.96 25.99	5412.8 0.48 1.74 19.86	15330.6 1.37 4.93 30.62	49511.4 4.43 15.93 33.00	310880 27.81
VO_TECH	22635.6 2.02 6.36 26.30	21861 1.96 6.14 26.57	213607 19.11 59.98 34.04	13833.2 1.24 3.88 29.16	17694.7 1.58 4.97 37.40	9364.8 0.84 2.63 34.37	17125.3 1.53 4.81 34.20	40027.2 3.58 11.24 26.68	356149 31.86
LEGITSEP	0 0.00 0.00 0.00	330.442 0.03 20.41 0.40	679.067 0.06 41.94 0.11	268.798 0.02 16.60 0.57	33.265 0.00 2.05 0.07	0 0.00 0.00 0.00	307.407 0.03 18.99 0.61	0 0.00 0.00 0.00	1618.98 0.14
TOTAL	86052.3 7.70	82262.3 7.36	627590 56.14	47441.5 4.24	47312.6 4.23	27251 2.44	50074.6 4.48	150015 13.42	1118000 100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

VARIABLE	LABEL	N	N MISSING	MEAN	MAXIMUM VALUE	MINIMUM VALUE	SUM
CSEX=MALE TYPE OF TRAINING=APPRENTICESHIP							
VAR3146	EARNINGS 1977	293	25	11556.202	28500.000	0.000	8311462[illegible]
VAR3147	EARNINGS 1978	294	24	13187.508	29000.000	0.000	9[illegible]
VAR3148	EARNINGS 1979	296	22	15793.514	65000.000	0.000	1[illegible]
VAR3164	FAMILY INC. 1977	288	30	13632.363	35000.000	0.000	9[illegible]
VAR3165	FAMILY INC. 1978	290	28	15800.925	38000.000	0.000	1[illegible]
VAR3166	FAMILY INC. 1979	292	26	18793.191	65000.000	0.000	1[illegible]
F1111A84	OWN WAGES 1984	280	38	23451.803	99993.000	0.000	1[illegible]
F1111084	TOTAL INCOME 1984	280	38	30719.795	99993.000	0.000	2[illegible]
F1111A85	OWN WAGES 1985	280	38	25451.123	85000.000	0.000	1[illegible]
F1111085	TOTAL INCOME 1985	280	38	33712.143	85000.000	0.000	2[illegible]
F5FWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	318	0	292.312	864.701	30.693	2[illegible]
CSEX=MALE TYPE OF TRAINING=ARMED FORCES							
VAR3146	EARNINGS 1977	269	14	7515.111	20000.000	0.000	5[illegible]
VAR3147	EARNINGS 1978	268	15	9084.795	23000.000	0.000	6[illegible]
VAR3148	EARNINGS 1979	267	16	10805.169	28000.000	0.000	7[illegible]
VAR3164	FAMILY INC. 1977	270	13	8747.858	31000.000	0.000	5[illegible]
VAR3165	FAMILY INC. 1978	270	13	10989.269	95000.000	0.000	7[illegible]
VAR3166	FAMILY INC. 1979	269	14	13020.471	79000.000	0.000	8[illegible]
F1111A84	OWN WAGES 1984	260	23	18690.005	45000.000	0.000	1[illegible]
F1111084	TOTAL INCOME 1984	260	23	24291.054	56200.000	0.000	1[illegible]
F1111A85	OWN WAGES 1985	260	23	20289.007	61000.000	0.000	1[illegible]
F1111085	TOTAL INCOME 1985	260	23	26864.638	75000.000	0.000	1[illegible]
F5FWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	283	0	309.988	1254.630	36.830	2[illegible]
CSEX=MALE TYPE OF TRAINING=OJT							
VAR3146	EARNINGS 1977	1029	74	10761.097	65000.000	0.000	2[illegible]
VAR3147	EARNINGS 1978	1032	71	12434.836	83000.000	0.000	3[illegible]
VAR3148	EARNINGS 1979	1022	81	14541.572	95000.000	0.000	3[illegible]
VAR3164	FAMILY INC. 1977	1017	86	12565.809	52000.000	0.000	3[illegible]
VAR3165	FAMILY INC. 1978	1016	87	14873.252	83000.000	0.000	3[illegible]
VAR3166	FAMILY INC. 1979	1012	91	17342.641	95000.000	0.000	4[illegible]
F1111A84	OWN WAGES 1984	1014	89	21015.384	99993.000	0.000	5[illegible]
F1111084	TOTAL INCOME 1984	1014	89	27592.872	99993.000	0.000	6[illegible]
F1111A85	OWN WAGES 1985	1013	90	23047.527	99993.000	0.000	5[illegible]
F1111085	TOTAL INCOME 1985	1013	90	30341.571	99993.000	0.000	7[illegible]
F5FWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	1103	0	295.876	802.678	29.741	8[illegible]

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

VARIABLE	LABEL	N	N MISSING	MEAN	MAXIMUM VALUE	MINIMUM VALUE	SUM
CSEX=MALE TYPE OF TRAINING=EMPLOYER,NOT OJT							
VAR3146	EARNINGS 1977	81	4	11149.821	30000.000	0.000	233017837.32
VAR3147	EARNINGS 1978	81	4	12959.089	40000.000	0.000	271448847.91
VAR3148	EARNINGS 1979	80	5	16161.603	80000.000	1200.000	334569952.44
VAR3164	FAMILY INC. 1977	79	6	13748.973	32000.000	0.000	284400852.69
VAR3165	FAMILY INC. 1978	78	7	15864.718	75000.000	0.000	323618845.1[illegible]
VAR3166	FAMILY INC. 1979	79	6	18413.008	85000.000	0.000	380872550.12
F1111A84	OWN WAGES 1984	81	4	19860.288	46800.000	0.000	414223311.58
F1111084	TOTAL INCOME 1984	80	5	27813.759	88000.000	0.000	570316779.4[illegible]
F1111A85	OWN WAGES 1985	81	4	22396.210	99993.000	0.000	46711468[illegible].1[illegible]
F1111085	TOTAL INCOME 1985	80	5	32100.127	99993.000	0.000	658208100.72
FUPWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	85	0	285.588	486.914	29.882	6256293.[illegible]
CSEX=MALE TYPE OF TRAINING=E&T PROGRAM							
VAR3146	EARNINGS 1977	61	9	8930.883	25000.000	0.000	118702120.1[illegible]
VAR3147	EARNINGS 1978	61	9	10451.392	35000.000	0.000	138911569.1[illegible]
VAR3148	EARNINGS 1979	60	10	11794.921	34000.000	0.000	154909355.6[illegible]
VAR3164	FAMILY INC. 1977	58	12	10488.854	35000.000	800.000	134860612.6[illegible]
VAR3165	FAMILY INC. 1978	59	11	12656.284	48000.000	800.000	163798456.4[illegible]
VAR3166	FAMILY INC. 1979	59	11	14868.871	45000.000	0.000	192433898.[illegible]
F1111A84	OWN WAGES 1984	64	6	13112.595	36000.000	0.000	186419364.1[illegible]
F1111084	TOTAL INCOME 1984	64	6	20829.396	52974.000	0.000	296126127.4[illegible]
F1111A85	OWN WAGES 1985	64	6	14517.648	45000.000	0.000	206393636.11
F1111085	TOTAL INCOME 1985	64	6	21801.717	55852.000	0.000	309949386.[illegible]
FUPWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	70	0	262.158	443.930	56.576	40247[illegible].[illegible]
CSEX=MALE TYPE OF TRAINING=OTHER PROGRAM							
VAR3146	EARNINGS 1977	33	7	9849.760	21000.000	0.000	1[illegible]12251.[illegible]
VAR3147	EARNINGS 1978	33	7	12294.152	24000.000	0.000	1292006[illegible].[illegible]
VAR3148	EARNINGS 1979	34	6	15315.432	28000.000	0.000	1622555[illegible].[illegible]
VAR3164	FAMILY INC. 1977	33	7	11788.022	21000.000	0.000	1231[illegible]515.[illegible]
VAR3165	FAMILY INC. 1978	35	5	14395.713	27400.000	0.000	1552[illegible]96.[illegible]
VAR3166	FAMILY INC. 1979	35	5	18324.170	33000.000	2188.000	1954[illegible]085.[illegible]
F1111A84	OWN WAGES 1984	38	2	19542.615	70000.000	0.000	2021[illegible]7.[illegible]
F1111084	TOTAL INCOME 1984	37	3	27835.040	98000.000	0.000	2829[illegible]02.[illegible]
F1111A85	OWN WAGES 1985	38	2	22390.685	80000.000	0.000	2316[illegible]12.[illegible]
F1111085	TOTAL INCOME 1985	37	3	30736.367	99993.000	12000.000	3114[illegible]3.[illegible]
FUPWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	40	0	424.712	1394.424	61.853	[illegible]

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

VARIABLE	LABEL	N	N MISSING	MEAN	MAXIMUM VALUE	MINIMUM VALUE	SUM
CSEX=MALE TYPE OF TRAINING=PERSONAL							
V6K3146	EARNINGS 1977	59	3	9427.861	20000.000	0.000	145234928.92
V6K3147	EARNINGS 1978	59	3	10899.941	30000.000	0.000	167912112.84
V6K3148	EARNINGS 1979	59	3	12407.179	40000.000	0.000	191130922.56
V6K3164	FAMILY INC. 1977	58	4	11430.497	28000.000	0.000	171026564.24
V6K3165	FAMILY INC. 1978	58	4	13051.377	31000.000	0.000	195271816.56
V6K3166	FAMILY INC. 1979	58	4	14646.021	40000.000	0.000	219130530.54
F1111A84	OWN WAGES 1984	52	10	16612.794	40700.000	0.000	222262228.50
F1111084	TOTAL INCOME 1984	52	10	20718.178	57000.000	0.000	277188062.60
F1111A85	OWN WAGES 1985	51	11	17898.577	41200.000	0.000	237966445.86
F1111085	TOTAL INCOME 1985	51	11	23176.658	72000.000	0.000	308139972.44
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	62	0	289.425	478.128	64.257	4591124.16
CSEX=MALE TYPE OF TRAINING=OTHER							
V6K3146	EARNINGS 1977	230	18	10121.889	36000.000	0.000	559514608.0
V6K3147	EARNINGS 1978	230	18	11988.641	45000.000	0.000	663565965.5
V6K3148	EARNINGS 1979	230	18	13604.698	60000.000	0.000	754292080.5
V6K3164	FAMILY INC. 1977	229	19	11604.474	36000.000	0.000	635502245.8
V6K3165	FAMILY INC. 1978	231	17	14315.284	70000.000	0.000	792276659.6
V6K3166	FAMILY INC. 1979	231	17	16545.579	100000.000	0.000	914083554.7
F1111A84	OWN WAGES 1984	232	16	17668.112	58000.000	0.000	997962632.8
F1111084	TOTAL INCOME 1984	232	16	24545.826	99993.000	0.000	1386442281.2
F1111A85	OWN WAGES 1985	231	17	18717.053	60000.000	0.000	1053191914.8
F1111085	TOTAL INCOME 1985	232	16	26737.063	99993.000	0.000	1510211760.0
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	248	0	271.681	640.637	43.300	16320074.1
CSEX=FEMALE TYPE OF TRAINING=APPRENTICESHIP							
V6K3146	EARNINGS 1977	38	6	6303.880	19000.000	0.000	461715[illegible]
V6K3147	EARNINGS 1978	38	6	9008.496	35000.000	0.000	649385[illegible]
V6K3148	EARNINGS 1979	38	6	11030.314	40000.000	0.000	791045[illegible]
V6K3164	FAMILY INC. 1977	35	9	12570.944	35900.000	1400.000	835088[illegible]
V6K3165	FAMILY INC. 1978	35	9	19743.930	125200.000	800.000	1311590[illegible]
V6K3166	FAMILY INC. 1979	35	9	21597.237	122850.000	3440.000	1434[illegible]
F1111A84	OWN WAGES 1984	41	3	9637.676	46900.000	0.000	7341[illegible]
F1111084	TOTAL INCOME 1984	41	3	29462.732	99993.000	3348.000	2244[illegible]
F1111A85	OWN WAGES 1985	41	3	11662.223	54900.000	0.000	888[illegible]
F1111085	TOTAL INCOME 1985	41	3	32343.358	99993.000	2597.000	2463[illegible]
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	44	0	231.657	345.489	30.894	1941[illegible]

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

VARIABLE	LABEL	N	N MISSING	MEAN	MAXIMUM VALUE	MINIMUM VALUE	SUM
CSEX=FEMALE TYPE OF TRAINING=ARMED FORCES							
VAR3146	EARNINGS 1977	46	3	6488.407	18000.000	0.000	67033196.22
VAR3147	EARNINGS 1978	47	2	7017.549	12000.000	0.000	73836208.36
VAR3148	EARNINGS 1979	47	2	7657.317	14520.000	0.000	82204075.97
VAR3164	FAMILY INC. 1977	44	5	12119.475	50500.000	100.000	170446142.93
VAR3165	FAMILY INC. 1978	45	4	15531.428	90000.000	200.000	157312722.49
VAR3166	FAMILY INC. 1979	45	4	14341.569	48400.000	1000.000	148315817.85
F1111A84	OWN WAGES 1984	45	4	7871.503	26000.000	0.000	78805543.16
F1111084	TOTAL INCOME 1984	45	4	24991.040	75000.000	0.000	250197768.71
F1111A85	OWN WAGES 1985	45	4	9160.704	36000.000	0.000	91712382.87
F1111085	TOTAL INCOME 1985	45	4	27636.028	62000.000	0.000	276678070.57
FUSWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	49	0	324.448	1031.442	30.649	3543781.34
CSEX=FEMALE TYPE OF TRAINING=OJT							
VAR3146	EARNINGS 1977	1453	144	5746.642	40000.000	0.000	1835544671.5
VAR3147	EARNINGS 1978	1452	145	6548.270	84500.000	0.000	2091518869.1
VAR3148	EARNINGS 1979	1449	148	7248.082	84000.000	0.000	2310653007.7
VAR3164	FAMILY INC. 1977	1421	176	12665.005	70000.000	0.000	3986308911.3
VAR3165	FAMILY INC. 1978	1427	170	14862.305	85000.000	0.000	4692115978.1
VAR3166	FAMILY INC. 1979	1434	163	17325.684	130000.000	0.000	5506857937.0
F1111A84	OWN WAGES 1984	1444	153	9855.563	99993.000	0.000	3152798082.7
F1111084	TOTAL INCOME 1984	1441	156	27317.181	99993.000	0.000	8719027617.7
F1111A85	OWN WAGES 1985	1443	154	11063.238	99993.000	0.000	3536229189.9
F1111085	TOTAL INCOME 1985	1441	156	30779.936	99993.000	0.000	9834266625.4
FUSWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	1597	0	270.717	1076.904	15.411	95640066.8
CSEX=FEMALE TYPE OF TRAINING=EMPLOYER,NOT OJT							
VAR3146	EARNINGS 1977	102	14	5793.330	15000.000	0.000	130976868.0
VAR3147	EARNINGS 1978	102	14	6718.142	26000.000	0.000	151985235.5
VAR3148	EARNINGS 1979	102	14	7325.941	20000.000	0.000	165679713.4
VAR3164	FAMILY INC. 1977	100	16	12892.632	30000.000	0.000	286675196.4
VAR3165	FAMILY INC. 1978	100	16	15349.813	96000.000	0.000	344389411.0
VAR3166	FAMILY INC. 1979	102	14	17922.089	98000.000	0.000	406578789.1
F1111A84	OWN WAGES 1984	114	2	10874.275	31600.000	0.000	272483387.0
F1111084	TOTAL INCOME 1984	114	2	25845.855	99993.000	0.000	647635467.0
F1111A85	OWN WAGES 1985	114	2	11646.021	33500.000	0.000	291821489.3
F1111085	TOTAL INCOME 1985	114	2	29421.474	99993.000	0.000	737231945.8
FUSWT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	116	0	265.808	558.378	30.863	6782758.0

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

VARIABLE	LABEL	N	N MISSING	MEAN	MAXIMUM VALUE	MINIMUM VALUE	SUM
---------- CSEX=FEMALE TYPE OF TRAINING=EAT PROGRAM ----------							
VAR3146	EARNINGS 1977	136	27	5249.862	40000.000	0.000	139441962.2[illegible]
VAR3147	EARNINGS 1978	140	23	5365.504	42000.000	0.000	144643552.[illegible]
VAR3148	EARNINGS 1979	143	20	5963.931	44000.000	0.000	167362963.[illegible]
VAR3164	FAMILY INC. 1977	138	25	10862.961	51000.000	0.000	293755603.[illegible]
VAR3165	FAMILY INC. 1978	143	20	11498.346	42400.000	0.000	317795965.[illegible]
VAR3166	FAMILY INC. 1979	144	19	14244.082	50900.000	0.000	402297221.[illegible]
F1111A84	OWN WAGES 1984	146	17	8051.593	40000.000	0.000	224144226.[illegible]
F1111084	TOTAL INCOME 1984	145	18	20823.634	90000.000	0.000	578341648.[illegible]
F1111A85	OWN WAGES 1985	145	18	9570.019	53400.000	0.000	266089632.[illegible]
F1111085	TOTAL INCOME 1985	144	19	23676.296	78000.000	0.000	656764749.[illegible]
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	163	0	254.518	665.775	32.671	8134426.[illegible]
---------- CSEX=FEMALE TYPE OF TRAINING=OTHER PROGRAM ----------							
VAR3146	EARNINGS 1977	56	13	4513.234	16000.000	0.000	57193358.[illegible]
VAR3147	EARNINGS 1978	55	14	5027.800	25000.000	0.000	62242816.[illegible]
VAR3148	EARNINGS 1979	58	11	5563.453	33000.000	0.000	73356224.[illegible]
VAR3164	FAMILY INC. 1977	58	11	13094.285	27000.000	300.000	17263[illegible]96.[illegible]
VAR3165	FAMILY INC. 1978	58	11	15054.050	42000.000	0.000	19962514.[illegible]
VAR3166	FAMILY INC. 1979	59	10	17260.220	70000.000	1000.000	233385978.[illegible]
F1111A84	OWN WAGES 1984	64	5	8133.787	40000.000	0.000	113012694.[illegible]
F1111084	TOTAL INCOME 1984	63	6	25664.721	83900.000	0.000	354901[illegible]20.[illegible]
F1111A85	OWN WAGES 1985	64	5	8387.085	26119.000	0.000	116531448.[illegible]
F1111085	TOTAL INCOME 1985	63	6	29066.503	99993.000	0.000	401942874.[illegible]
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	69	0	257.127	485.095	43.240	3921607.[illegible]
---------- CSEX=FEMALE TYPE OF TRAINING=PERSONAL ----------							
VAR3146	EARNINGS 1977	122	15	5337.882	62000.000	0.000	162128782.[illegible]
VAR3147	EARNINGS 1978	121	16	5294.523	27966.000	0.000	160[illegible]598.[illegible]
VAR3148	EARNINGS 1979	124	13	6558.182	75000.000	0.000	202376601.[illegible]
VAR3164	FAMILY INC. 1977	121	16	13900.165	28600.000	0.000	409[illegible]25.[illegible]
VAR3165	FAMILY INC. 1978	121	16	14886.245	30000.000	0.000	442591253.[illegible]
VAR3166	FAMILY INC. 1979	124	13	18145.900	50000.000	0.000	552713[illegible]4.[illegible]
F1111A84	OWN WAGES 1984	120	17	8046.954	32035.000	0.000	239[illegible]
F1111084	TOTAL INCOME 1984	120	17	27074.789	66460.000	0.000	8[illegible]
F1111A85	OWN WAGES 1985	120	17	8427.845	37417.000	0.000	25[illegible]
F1111085	TOTAL INCOME 1985	120	17	28657.389	70500.000	0.000	85[illegible]
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	137	0	279.267	494.952	49.026	[illegible]

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO
WEIGHTED

VARIABLE	LABEL	N	N MISSING	MEAN	MAXIMUM VALUE	MINIMUM VALUE	SUM
CSEX=FEMALE TYPE OF TRAINING=OTHER							
VAR3146	EARNINGS 1977	374	40	4620.957	20000.000	0.000	375909351.9
VAR3147	EARNINGS 1978	376	38	5356.235	45000.000	0.000	438683990.1
VAR3148	EARNINGS 1979	373	41	6180.545	80000.000	0.000	500207654.4
VAR3164	FAMILY INC. 1977	361	53	12777.240	70000.000	0.000	1007092180.6
VAR3165	FAMILY INC. 1978	371	43	14929.603	60000.000	0.000	1209559623.6
VAR3166	FAMILY INC. 1979	374	40	17070.641	102500.000	0.000	1396837001.2
F1111A84	OWN WAGES 1984	370	44	6718.204	80000.000	0.000	541567454.1
F1111084	TOTAL INCOME 1984	365	49	26223.022	99993.000	0.000	2079900993.0
F1111A85	OWN WAGES 1985	370	44	7505.182	80000.000	0.000	605007198.8
F1111085	TOTAL INCOME 1985	364	50	28650.592	99993.000	0.000	2269696466.1
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	414	0	254.950	862.775	14.808	22931395.8
CSEX=MISSING TYPE OF TRAINING=OJT							
VAR3146	EARNINGS 1977	1	0	5500.000	5500.000	5500.000	1754379.000
VAR3147	EARNINGS 1978	1	0	6000.000	6000.000	6000.000	1913868.000
VAR3148	EARNINGS 1979	1	0	4000.000	4000.000	4000.000	1275912.000
VAR3164	FAMILY INC. 1977	1	0	7372.000	7372.000	7372.000	2351505.816
VAR3165	FAMILY INC. 1978	1	0	7872.000	7872.000	7872.000	2510994.816
VAR3166	FAMILY INC. 1979	1	0	4000.000	4000.000	4000.000	1275912.000
F1111A84	OWN WAGES 1984	1	0	18000.000	18000.000	18000.000	5741604.000
F1111084	TOTAL INCOME 1984	1	0	22000.000	22000.000	22000.000	7017516.000
F1111A85	OWN WAGES 1985	1	0	19000.000	19000.000	19000.000	6060582.000
F1111085	TOTAL INCOME 1985	1	0	27000.000	27000.000	27000.000	8612406.000
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	1	0	318.978	318.978	318.978	101746.984
CSEX=MISSING TYPE OF TRAINING=PERSONAL							
VAR3146	EARNINGS 1977	0	1	.	.	.	.
VAR3147	EARNINGS 1978	0	1	.	.	.	.
VAR3148	EARNINGS 1979	0	1	.	.	.	.
VAR3164	FAMILY INC. 1977	0	1	.	.	.	.
VAR3165	FAMILY INC. 1978	0	1	.	.	.	.
VAR3166	FAMILY INC. 1979	0	1	.	.	.	.
F1111A84	OWN WAGES 1984	1	0	3000.000	3000.000	3000.000	778566.000
F1111084	TOTAL INCOME 1984	1	0	3000.000	3000.000	3000.000	778566.000
F1111A85	OWN WAGES 1985	1	0	3000.000	3000.000	3000.000	778566.000
F1111085	TOTAL INCOME 1985	1	0	3000.000	3000.000	3000.000	778566.000
F05WT	WEIGHT FOR FIFTH FOLLOW-UP PARTICIPANTS	1	0	259.522	259.522	259.522	67351.488

APPENDIX B
DETAILED TABLES (UNWEIGHTED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3A BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3A(WORKING FOR PAY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	274	222	988	82	54	31	55	213	1919
	12.48	10.11	45.01	3.74	2.46	1.41	2.51	9.70	87.43
	14.28	11.57	51.49	4.27	2.81	1.62	2.87	11.10	
	86.16	79.86	90.23	96.47	77.14	79.49	88.71	85.89	
NO	44	55	107	3	16	8	7	35	275
	2.00	2.51	4.87	0.14	0.73	0.36	0.32	1.59	12.53
	16.00	20.00	38.91	1.09	5.82	2.91	2.55	12.73	
	13.84	19.78	9.77	3.53	22.86	20.51	11.29	14.11	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3A BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3A(WORKING FOR PAY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	33	30	1203	95	107	39	84	248	1839
	1.28	1.16	46.61	3.68	4.15	1.51	3.25	9.61	71.25
	1.79	1.63	65.42	5.17	5.82	2.12	4.57	13.49	
	75.00	61.22	75.61	81.90	66.05	56.52	61.76	59.90	
NO	11	19	386	20	55	30	52	163	736
	0.43	0.74	14.96	0.77	2.13	1.16	2.01	6.32	28.52
	1.49	2.58	52.45	2.72	7.47	4.08	7.07	22.15	
	25.00	38.78	24.26	17.24	33.95	43.48	38.24	39.37	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3A BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3A(WORKING FOR PAY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	1	0	0	0	0	0	1
	0.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	50.00
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	.	.	100.00	.	.	.	0.00	.	
NO	0	0	0	0	0	0	1	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00	50.00
	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	
	.	.	0.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3D BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3D(TAKING GRAD, PROF COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	1	2	3	0	0	0	0	0	6
	0.05	0.09	0.14	0.00	0.00	0.00	0.00	0.00	0.27
	16.67	33.33	50.00	0.00	0.00	0.00	0.00	0.00	
	0.31	0.72	0.27	0.00	0.00	0.00	0.00	0.00	
NO	317	275	1092	85	70	39	62	248	2188
	14.44	12.53	49.75	3.87	3.19	1.78	2.82	11.30	99.68
	14.49	12.57	49.91	3.88	3.20	1.78	2.83	11.33	
	99.69	98.92	99.73	100.00	100.00	100.00	100.00	100.00	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3D BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3D(TAKING GRAD, PROF COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	5	0	0	0	0	1	6
	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.04	0.23
	0.00	0.00	83.33	0.00	0.00	0.00	0.00	16.67	
	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.24	
NO	44	49	1584	115	162	69	136	410	2569
	1.70	1.90	61.37	4.46	6.28	2.67	5.27	15.89	99.54
	1.71	1.91	61.66	4.48	6.31	2.69	5.29	15.96	
	100.00	100.00	99.56	99.14	100.00	100.00	100.00	99.03	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 6

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3D BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3D(TAKING GRAD, PROF COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3C BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3C(TAKING ACADEMIC COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	5	24	30	3	4	1	5	6	78
	0.23	1.09	1.37	0.14	0.18	0.05	0.23	0.27	3.55
	6.41	30.77	38.46	3.85	5.13	1.28	6.41	7.69	
	1.57	8.63	2.74	3.53	5.71	2.56	8.06	2.42	
NO	313	253	1065	82	66	38	57	242	2116
	14.26	11.53	48.52	3.74	3.01	1.73	2.60	11.03	96.40
	14.79	11.96	50.33	3.88	3.12	1.80	2.69	11.44	
	98.43	91.01	97.26	96.47	94.29	97.44	91.94	97.58	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3C BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3C(TAKING ACADEMIC COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	1	5	83	5	4	5	7	20	130
	0.04	0.19	3.22	0.19	0.15	0.19	0.27	0.77	5.04
	0.77	3.85	63.85	3.85	3.08	3.85	5.38	15.38	
	2.27	10.20	5.22	4.31	2.47	7.25	5.15	4.83	
NO	43	44	1506	110	158	64	129	391	2445
	1.67	1.70	58.35	4.26	6.12	2.48	5.00	15.15	94.73
	1.76	1.80	61.60	4.50	6.46	2.62	5.28	15.99	
	97.73	89.80	94.66	94.83	97.53	92.75	94.85	94.44	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3C BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3C(TAKING ACADEMIC COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3B BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3B(TAKING VOC, TECH COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	16	16	48	3	2	1	0	6	92
	0.73	0.73	2.19	0.14	0.09	0.05	0.00	0.27	4.19
	17.39	17.39	52.17	3.26	2.17	1.09	0.00	6.52	
	5.03	5.76	4.38	3.53	2.86	2.56	0.00	2.42	
NO	302	261	1047	82	68	38	62	242	2102
	13.76	11.89	47.70	3.74	3.10	1.73	2.82	11.03	95.76
	14.37	12.42	49.81	3.90	3.24	1.81	2.95	11.51	
	94.97	93.88	95.62	96.47	97.14	97.44	100.00	97.58	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3B BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3B(TAKING VOC, TECH COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	2	1	46	3	5	1	7	9	74
	0.08	0.04	1.78	0.12	0.19	0.04	0.27	0.35	2.87
	2.70	1.35	62.16	4.05	6.76	1.35	9.46	12.16	
	4.55	2.04	2.89	2.59	3.09	1.45	5.15	2.17	
NO	42	48	1543	112	157	68	129	402	2501
	1.63	1.86	59.78	4.34	6.08	2.63	5.00	15.58	96.90
	1.68	1.92	61.70	4.48	6.28	2.72	5.16	16.07	
	95.45	97.96	96.98	96.55	96.91	98.55	94.85	97.10	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3B BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3B(TAKING VOC, TECH COURSES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0 0.00 . .	0 0.00 . .	0 0.00 . 0.00	0 0.00 . .	0 0.00 . .	0 0.00 . .	0 0.00 . 0.00	0 0.00 . .	0 0.00
NO	0 0.00 0.00 .	0 0.00 0.00 .	1 50.00 50.00 100.00	0 0.00 0.00 .	0 0.00 0.00 .	0 0.00 0.00 .	1 50.00 50.00 100.00	0 0.00 0.00 .	2 100.00
LEGITSKP	0 0.00 . .	0 0.00 . .	0 0.00 . 0.00	0 0.00 . .	0 0.00 . .	0 0.00 . .	0 0.00 . 0.00	0 0.00 . .	0 0.00
TOTAL	0 0.00	0 0.00	1 50.00	0 0.00	0 0.00	0 0.00	1 50.00	0 0.00	2 100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3E BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3E(APPRENTICE, GOVT TRNG PROG 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	8	5	5	2	1	0	1	0	22
	0.36	0.23	0.23	0.09	0.05	0.00	0.05	0.00	1.00
	36.36	22.73	22.73	9.09	4.55	0.00	4.55	0.00	
	2.52	1.80	0.46	2.35	1.43	0.00	1.61	0.00	
NO	310	272	1090	83	69	39	61	248	2172
	14.12	12.39	49.66	3.78	3.14	1.78	2.78	11.30	98.95
	14.27	12.52	50.18	3.82	3.18	1.80	2.81	11.42	
	97.48	97.84	99.54	97.65	98.57	100.00	98.39	100.00	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3E BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3E(APPRENTICE, GOVT TRNG PROG 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	2	0	7	1	1	0	0	0	11
	0.08	0.00	0.27	0.04	0.04	0.00	0.00	0.00	0.43
	18.18	0.00	63.64	9.09	9.09	0.00	0.00	0.00	
	4.55	0.00	0.44	0.86	0.62	0.00	0.00	0.00	
NO	42	49	1582	114	161	69	136	411	2564
	1.63	1.90	61.29	4.42	6.24	2.67	5.27	15.92	99.34
	1.64	1.91	61.70	4.45	6.28	2.69	5.30	16.03	
	95.45	100.00	99.43	98.28	99.38	100.00	100.00	99.28	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3E BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3E(APPRENTICE, GOVT TRNG PROG 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3F BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3F(ACTIVE DUTY ARMED FORCES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	3	48	6	0	1	0	1	1	60
	0.14	2.19	0.27	0.00	0.05	0.00	0.05	0.05	2.73
	5.00	80.00	10.00	0.00	1.67	0.00	1.67	1.67	
	0.94	17.27	0.55	0.00	1.43	0.00	1.61	0.40	
NO	315	229	1089	85	69	39	61	247	2134
	14.35	10.42	49.61	3.87	3.14	1.78	2.78	11.25	97.22
	14.76	10.73	51.03	3.98	3.23	1.83	2.86	11.57	
	99.06	82.37	99.45	100.00	98.57	100.00	98.39	99.60	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3F BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3F(ACTIVE DUTY ARMED FORCES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	1	6	3	0	1	1	0	0	12
	0.04	0.23	0.12	0.00	0.04	0.04	0.00	0.00	0.46
	8.33	50.00	25.00	0.00	8.33	8.33	0.00	0.00	
	2.27	12.24	0.19	0.00	0.62	1.45	0.00	0.00	
NO	43	43	1586	115	161	68	136	411	2563
	1.67	1.67	61.45	4.46	6.24	2.63	5.27	15.92	99.30
	1.68	1.68	61.88	4.49	6.28	2.65	5.31	16.04	
	97.73	87.76	99.69	99.14	99.38	98.55	100.00	99.28	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3F BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3F(ACTIVE DUTY ARMED FORCES 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3G BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3G(KEEPING HOUSE 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	7	6	15	0	0	1	0	3	32
	0.32	0.27	0.68	0.00	0.00	0.05	0.00	0.14	1.46
	21.88	18.75	46.88	0.00	0.00	3.13	0.00	9.38	
	2.20	2.16	1.37	0.00	0.00	2.56	0.00	1.21	
NO	311	271	1080	85	70	38	62	245	2162
	14.17	12.35	49.20	3.87	3.19	1.73	2.82	11.16	98.50
	14.38	12.53	49.95	3.93	3.24	1.76	2.87	11.33	
	97.80	97.48	98.63	100.00	100.00	97.44	100.00	98.79	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3G BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3G(KEEPING HOUSE 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	9	13	358	20	52	20	44	149	665
	0.35	0.50	13.87	0.77	2.01	0.77	1.70	5.77	25.77
	1.35	1.95	53.83	3.01	7.82	3.01	6.62	22.41	
	20.45	26.53	22.50	17.24	32.10	28.99	32.35	35.99	
NO	35	36	1231	95	110	49	92	262	1910
	1.36	1.39	47.69	3.68	4.26	1.90	3.56	10.15	74.00
	1.83	1.88	64.45	4.97	5.76	2.57	4.82	13.72	
	79.55	73.47	77.37	81.90	67.90	71.01	67.65	63.29	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3G BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3G(KEEPING HOUSE 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3H BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3H(ON TEMPORARY LAYOFF 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	14	10	28	1	0	2	1	10	66
	0.64	0.46	1.28	0.05	0.00	0.09	0.05	0.46	3.01
	21.21	15.15	42.42	1.52	0.00	3.03	1.52	15.15	
	4.40	3.60	2.56	1.18	0.00	5.13	1.61	4.03	
NO	304	267	1067	84	70	37	61	238	2128
	13.85	12.16	48.61	3.83	3.19	1.69	2.78	10.84	96.95
	14.29	12.55	50.14	3.95	3.29	1.74	2.87	11.18	
	95.60	96.04	97.44	98.82	100.00	94.87	98.39	95.97	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3H BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3H(ON TEMPCRARY LAYOFF 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	14	0	4	0	1	6	25
	0.00	0.00	0.54	0.00	0.15	0.00	0.04	0.23	0.97
	0.00	0.00	56.00	0.00	16.00	0.00	4.00	24.00	
	0.00	0.00	0.88	0.00	2.47	0.00	0.74	1.45	
NO	44	49	1575	115	158	69	135	405	2550
	1.70	1.90	61.02	4.46	6.12	2.67	5.23	15.69	98.80
	1.73	1.92	61.76	4.51	6.20	2.71	5.29	15.88	
	100.00	100.00	98.99	99.14	97.53	100.00	99.26	97.83	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3H BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3H(ON TEMPCRARY LAYOFF 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3I BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3I(LOOKING FOR WORK 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	19	18	69	2	9	3	1	14	135
	0.87	0.82	3.14	0.09	0.41	0.14	0.05	0.64	6.15
	14.07	13.33	51.11	1.48	6.67	2.22	0.74	10.37	
	5.97	6.47	6.30	2.35	12.86	7.69	1.61	5.65	
NO	299	259	1026	83	61	36	61	234	2059
	13.62	11.80	46.74	3.78	2.78	1.64	2.78	10.66	93.80
	14.52	12.58	49.83	4.03	2.96	1.75	2.96	11.36	
	94.03	93.17	93.70	97.65	87.14	92.31	98.39	94.35	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3I BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3I(LOOKING FOR WORK 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	2	5	67	8	18	3	7	21	131
	0.08	0.19	2.60	0.31	0.70	0.12	0.27	0.81	5.08
	1.53	3.82	51.15	6.11	13.74	2.29	5.34	16.03	
	4.55	10.20	4.21	6.90	11.11	4.35	5.15	5.07	
NO	42	44	1522	107	144	66	129	390	2444
	1.63	1.70	58.97	4.15	5.58	2.56	5.00	15.11	94.69
	1.72	1.80	62.27	4.38	5.89	2.70	5.28	15.96	
	95.45	89.80	95.66	92.24	88.89	95.65	94.85	94.20	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3I BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3I(LOOKING FOR WORK 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	EDT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3J BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3J(BREAK FROM WORK, SCHOOL 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	2	5	5	0	2	2	0	0	16
	0.09	0.23	0.23	0.00	0.09	0.09	0.00	0.00	0.73
	12.50	31.25	31.25	0.00	12.50	12.50	0.00	0.00	
	0.63	1.80	0.46	0.00	2.86	5.13	0.00	0.00	
NO	316	272	1090	85	68	37	62	248	2178
	14.40	12.39	49.66	3.87	3.10	1.69	2.82	11.30	99.23
	14.51	12.49	50.05	3.90	3.12	1.70	2.85	11.39	
	99.37	97.84	99.54	100.00	97.14	94.87	100.00	100.00	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3J BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3J(BREAK FROM WORK, SCHOOL 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	1	27	1	2	1	3	11	46
	0.00	0.04	1.05	0.04	0.08	0.04	0.12	0.43	1.78
	0.00	2.17	58.70	2.17	4.35	2.17	6.52	23.91	
	0.00	2.04	1.70	0.86	1.23	1.45	2.21	2.66	
NO	44	48	1562	114	160	68	133	400	2529
	1.70	1.86	60.52	4.42	6.20	2.63	5.15	15.50	97.99
	1.74	1.90	61.76	4.51	6.33	2.69	5.26	15.82	
	100.00	97.96	98.18	98.28	98.77	98.55	97.79	96.62	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 8

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3J BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3J(BREAK FROM WORK, SCHCOL 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
NO	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	
	.	.	100.00	.	.	.	100.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 1 OF FI3K BY _TRAIN
CONTROLLING FOR VAR1626=MALE

FI3K(OTHER ACTIVITY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	20	13	65	3	9	2	6	22	140
	0.91	0.59	2.96	0.14	0.41	0.09	0.27	1.00	6.38
	14.29	9.29	46.43	2.14	6.43	1.43	4.29	15.71	
	6.29	4.68	5.94	3.53	12.86	5.13	9.68	8.87	
NO	298	264	1030	82	61	37	56	226	2054
	13.58	12.03	46.92	3.74	2.78	1.69	2.55	10.30	93.58
	14.51	12.85	50.15	3.99	2.97	1.80	2.73	11.00	
	93.71	94.96	94.06	96.47	87.14	94.87	90.32	91.13	
LEGITSKP	0	1	0	0	0	0	0	0	1
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	318	278	1095	85	70	39	62	248	2195
	14.49	12.67	49.89	3.87	3.19	1.78	2.82	11.30	100.00

FREQUENCY MISSING = 14

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 2 OF FI3K BY _TRAIN
CONTROLLING FOR VAR1626=FEMALE

FI3K(OTHER ACTIVITY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	7	1	114	7	8	14	14	34	199
	0.27	0.04	4.42	0.27	0.31	0.54	0.54	1.32	7.71
	3.52	0.50	57.29	3.52	4.02	7.04	7.04	17.09	
	15.91	2.04	7.17	6.03	4.94	20.29	10.29	8.21	
NO	37	48	1475	108	154	55	122	377	2376
	1.43	1.86	57.15	4.18	5.97	2.13	4.73	14.61	92.06
	1.56	2.02	62.08	4.55	6.48	2.31	5.13	15.87	
	84.09	97.96	92.71	93.10	95.06	79.71	89.71	91.06	
LEGITSKP	0	0	2	1	0	0	0	3	6
	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.12	0.23
	0.00	0.00	33.33	16.67	0.00	0.00	0.00	50.00	
	0.00	0.00	0.13	0.86	0.00	0.00	0.00	0.72	
TOTAL	44	49	1591	116	162	69	136	414	2581
	1.70	1.90	61.64	4.49	6.28	2.67	5.27	16.04	100.00

FREQUENCY MISSING = 0

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE 3 OF FI3K BY _TRAIN
CONTROLLING FOR VAR1626=LEGITSKP

FI3K(OTHER ACTIVITY 1ST WK FEB 86) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
YES	0	0	0	0	0	0	1	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00	50.00
	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	
	.	.	0.00	.	.	.	100.00	.	
NO	0	0	1	0	0	0	0	0	1
	0.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	50.00
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	.	.	100.00	.	.	.	0.00	.	
LEGITSKP	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	
	.	.	0.00	.	.	.	0.00	.	
TOTAL	0	0	1	0	0	0	1	0	2
	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE OF _TRAIN BY VAR3281

_TRAIN(TYPE OF TRAINING) VAR3281(#OATT)

FREQUENCY PERCENT ROW PCT COL PCT	NO COLL, NO VOC	NO COLL, SOME VOC	<2YR COL, NO VOC	<2YR COL, SOME VOC	>2YR COL, NO VOC	>2YR COL, SOME VOC	MISSING	TOTAL
APPRENTICESHIP	86	138	27	72	15	24	0	362
	1.79	2.88	0.56	1.50	0.31	0.50	0.00	7.54
	23.76	38.12	7.46	19.89	4.14	6.63	0.00	
	6.49	12.06	4.10	8.50	4.19	5.25	0.00	
ARMED FORCES	78	87	34	86	13	34	0	332
	1.63	1.81	0.71	1.79	0.27	0.71	0.00	6.92
	23.49	26.20	10.24	25.90	3.92	10.24	0.00	
	5.88	7.60	5.16	10.15	3.63	7.44	0.00	
OJT	966	572	342	413	183	221	4	2701
	20.13	11.92	7.13	8.60	3.81	4.60	0.08	56.27
	35.76	21.18	12.66	15.29	6.78	8.18	0.15	
	72.85	50.00	51.90	48.76	51.12	48.36	44.44	
EMPLOYER,NOT OJT	42	46	24	47	19	23	0	201
	0.88	0.96	0.50	0.98	0.40	0.48	0.00	4.19
	20.90	22.89	11.94	23.38	9.45	11.44	0.00	
	3.17	4.02	3.64	5.55	5.31	5.03	0.00	
TOTAL	1326	1144	659	847	358	457	9	4800
	27.63	23.83	13.73	17.65	7.46	9.52	0.19	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE OF _TRAIN BY VAR3281

_TRAIN(TYPE OF TRAINING) VAR3281(EDATT)

FREQUENCY PERCENT ROW PCT COL PCT	NO COLL, NO VOC	NO COLL, SOME VOC	<2YR COL, NO VOC	<2YR COL, SOME VOC	>2YR COL, NO VOC	>2YR COL, SOME VOC	MISSING	TOTAL
E&T PROGRAM	52	74	28	39	16	23	1	233
	1.08	1.54	0.58	0.81	0.33	0.48	0.02	4.85
	22.32	31.76	12.02	16.74	6.87	9.87	0.43	
	3.92	6.47	4.25	4.60	4.47	5.03	11.11	
OTHER PROGRAM	29	34	9	17	8	12	0	109
	0.60	0.71	0.19	0.35	0.17	0.25	0.00	2.27
	26.61	31.19	8.26	15.60	7.34	11.01	0.00	
	2.19	2.97	1.37	2.01	2.23	2.63	0.00	
PERSONAL	73	38	36	31	12	10	0	200
	1.52	0.79	0.75	0.65	0.25	0.21	0.00	4.17
	36.50	19.00	18.00	15.50	6.00	5.00	0.00	
	5.51	3.32	5.46	3.66	3.35	2.19	0.00	
OTHER	0	155	159	142	92	110	4	662
	0.00	3.23	3.31	2.96	1.92	2.29	0.08	13.79
	0.00	23.41	24.02	21.45	13.90	16.62	0.60	
	0.00	13.55	24.13	16.77	25.70	24.07	44.44	
TOTAL	1326	1144	659	847	358	457	9	4800
	27.63	23.83	13.73	17.65	7.46	9.52	0.19	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE OF _YEAR BY _TRAIN

_YEAR(YEARS IN PROGRAM (BIT STR)) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
00000	0	0	0	0	0	0	0	662	662
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.79	13.79
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	
00001	63	0	301	84	118	20	32	0	618
	1.31	0.00	6.27	1.75	2.46	0.42	0.67	0.00	12.86
	10.19	0.00	48.71	13.59	19.09	3.24	5.18	0.00	
	17.40	0.00	11.14	41.79	50.64	18.35	16.00	0.00	
00010	50	59	321	43	32	19	35	0	559
	1.04	1.23	6.69	0.90	0.67	0.40	0.73	0.00	11.65
	8.94	10.55	57.42	7.69	5.72	3.40	6.26	0.00	
	13.81	17.77	11.88	21.39	13.73	17.43	17.50	0.00	
00011	17	0	141	11	6	0	8	0	183
	0.35	0.00	2.94	0.23	0.13	0.00	0.17	0.00	3.81
	9.29	0.00	77.05	6.01	3.28	0.00	4.37	0.00	
	4.70	0.00	5.22	5.47	2.58	0.00	4.00	0.00	
00100	24	58	272	30	23	22	34	0	463
	0.50	1.21	5.67	0.63	0.48	0.46	0.71	0.00	9.65
	5.18	12.53	58.75	6.48	4.97	4.75	7.34	0.00	
	6.63	17.47	10.07	14.93	9.87	20.18	17.00	0.00	
00101	2	0	83	5	3	2	3	0	98
	0.04	0.00	1.73	0.10	0.06	0.04	0.06	0.00	2.04
	2.04	0.00	84.69	5.10	3.06	2.04	3.06	0.00	
	0.55	0.00	3.07	2.49	1.29	1.83	1.50	0.00	
00110	14	46	102	7	1	1	7	0	176
	0.29	0.96	2.13	0.15	0.02	0.02	0.15	0.00	3.71
	7.87	25.84	57.30	3.93	0.56	0.56	3.93	0.00	
	3.87	13.86	3.76	3.48	0.43	0.92	3.50	0.00	
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE OF _YEAR BY _TRAIN

_YEAR(YEARS IN PROGRAM (SIT STR)) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	ELT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
00111	2	0	60	1	1	0	2	0	66
	0.04	0.00	1.25	0.02	0.02	0.00	0.04	0.00	1.38
	3.03	0.00	90.91	1.52	1.52	0.00	3.03	0.00	
	0.55	0.00	2.22	0.50	0.43	0.00	1.00	0.00	
01000	27	72	181	15	14	4	28	0	341
	0.56	1.50	3.77	0.31	0.29	0.08	0.58	0.00	7.10
	7.92	21.11	53.08	4.40	4.11	1.17	8.21	0.00	
	7.46	21.69	6.70	7.46	6.01	3.67	14.00	0.00	
01001	1	0	34	0	3	0	1	0	39
	0.02	0.00	0.71	0.00	0.06	0.00	0.02	0.00	0.81
	2.56	0.00	87.18	0.00	7.69	0.00	2.56	0.00	
	0.28	0.00	1.26	0.00	1.29	0.00	0.50	0.00	
01010	3	14	44	1	1	0	4	0	67
	0.06	0.29	0.92	0.02	0.02	0.00	0.08	0.00	1.40
	4.48	20.90	65.67	1.49	1.49	0.00	5.97	0.00	
	0.83	4.22	1.63	0.50	0.43	0.00	2.00	0.00	
01011	1	0	18	0	0	0	2	0	21
	0.02	0.00	0.38	0.00	0.00	0.00	0.04	0.00	0.44
	4.76	0.00	85.71	0.00	0.00	0.00	9.52	0.00	
	0.28	0.00	0.67	0.00	0.00	0.00	1.00	0.00	
01100	9	43	54	4	2	0	3	0	115
	0.19	0.90	1.13	0.08	0.04	0.00	0.06	0.00	2.40
	7.83	37.39	46.96	3.48	1.74	0.00	2.61	0.00	
	2.49	12.95	2.00	1.99	0.86	0.00	1.50	0.00	
01101	3	0	19	0	1	0	2	0	25
	0.06	0.00	0.40	0.00	0.02	0.00	0.04	0.00	0.52
	12.00	0.00	76.00	0.00	4.00	0.00	8.00	0.00	
	0.83	0.00	0.70	0.00	0.43	0.00	1.00	0.00	
TOTAL	262	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

(CONTINUED)

CPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TAbLE OF _YEAR BY _TRAIN

_YEAR(YEARS IN PPOGRAM (bIT STR)) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / CCL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
01110	8	40	43	0	0	1	3	0	95
	0.17	0.83	0.90	0.00	0.00	0.02	0.06	0.00	1.98
	8.42	42.11	45.26	0.00	0.00	1.05	3.16	0.00	
	2.21	12.05	1.59	0.00	0.00	0.92	1.50	0.00	
01111	2	0	21	0	0	0	0	0	23
	0.04	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.48
	8.70	0.00	91.30	0.00	0.00	0.00	0.00	0.00	
	0.55	0.00	0.78	0.00	0.00	0.00	0.00	0.00	
10000	91	0	399	0	20	39	26	0	575
	1.90	0.00	8.31	0.00	0.42	0.81	0.54	0.00	11.98
	15.83	0.00	69.39	0.00	3.48	6.78	4.52	0.00	
	25.14	0.00	14.77	0.00	8.58	35.78	13.00	0.00	
10001	3	0	62	0	1	0	0	0	66
	0.06	0.00	1.29	0.00	0.02	0.00	0.00	0.00	1.38
	4.55	0.00	93.94	0.00	1.52	0.00	0.00	0.00	
	0.83	0.00	2.30	0.00	0.43	0.00	0.00	0.00	
10010	2	0	70	0	2	1	0	0	75
	0.04	0.00	1.46	0.00	0.04	0.02	0.00	0.00	1.56
	2.67	0.00	93.33	0.00	2.67	1.33	0.00	0.00	
	0.55	0.00	2.59	0.00	0.86	0.92	0.00	0.00	
10011	0	0	24	0	0	0	0	0	24
	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.50
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	
10100	7	0	84	0	0	0	2	0	93
	0.15	0.00	1.75	0.00	0.00	0.00	0.04	0.00	1.94
	7.53	0.00	90.32	0.00	0.00	0.00	2.15	0.00	
	1.93	0.00	3.11	0.00	0.00	0.00	1.00	0.00	
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE OF _YEAR BY _TRAIN

_YEAR(YEARS IN PROGRAM (BIT STR)) _TRAIN(TYPE OF TRAINING)

FREQUENCY / PERCENT / ROW PCT / COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	E&T PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
10101	0	0	21	0	0	0	0	0	21
	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.44
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00	
10110	3	0	46	0	0	0	0	0	49
	0.06	0.00	0.96	0.00	0.00	0.00	0.00	0.00	1.02
	6.12	0.00	93.88	0.00	0.00	0.00	0.00	0.00	
	0.83	0.00	1.70	0.00	0.00	0.00	0.00	0.00	
10111	0	0	18	0	0	0	0	0	18
	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.38
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	
11000	6	0	85	0	3	0	3	0	100
	0.13	0.00	1.85	0.00	0.06	0.00	0.06	0.00	2.08
	6.00	0.00	88.00	0.00	3.00	0.00	3.00	0.00	
	1.66	0.00	3.26	0.00	1.29	0.00	1.50	0.00	
11001	0	0	27	0	0	0	0	0	27
	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.56
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	
11010	4	0	32	0	1	0	0	0	37
	0.08	0.00	0.67	0.00	0.02	0.00	0.00	0.00	0.77
	10.81	0.00	86.49	0.00	2.70	0.00	0.00	0.00	
	1.10	0.00	1.18	0.00	0.43	0.00	0.00	0.00	
11011	0	0	18	0	0	0	0	0	18
	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.38
	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	
TOTAL	362	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

(CONTINUED)

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TABLE OF _YEAR BY _TRAIN

_YEAR(YEARS IN PROGRAM (BIT STR)) _TRAIN(TYPE OF TRAINING)

FREQUENCY PERCENT ROW PCT COL PCT	APPRENTICESHIP	ARMED FORCES	OJT	EMPLOYER, NOT OJT	FLT PROGRAM	OTHER PROGRAM	PERSONAL	OTHER	TOTAL
11100	9	0	40	0	1	0	2	0	52
	0.19	0.00	0.83	0.00	0.02	0.00	0.04	0.00	1.08
	17.31	0.00	76.92	0.00	1.92	0.00	3.85	0.00	
	2.49	0.00	1.48	0.00	0.43	0.00	1.00	0.00	
11101	1	0	10	0	0	0	2	0	13
	0.02	0.00	0.21	0.00	0.00	0.00	0.04	0.00	0.27
	7.69	0.00	76.92	0.00	0.00	0.00	15.38	0.00	
	0.28	0.00	0.37	0.00	0.00	0.00	1.00	0.00	
11110	9	0	40	0	0	0	1	0	50
	0.19	0.00	0.83	0.00	0.00	0.00	0.02	0.00	1.04
	18.00	0.00	80.00	0.00	0.00	0.00	2.00	0.00	
	2.49	0.00	1.48	0.00	0.00	0.00	0.50	0.00	
11111	1	0	28	0	0	0	0	0	29
	0.02	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.60
	3.45	0.00	96.55	0.00	0.00	0.00	0.00	0.00	
	0.29	0.00	1.04	0.00	0.00	0.00	0.00	0.00	
TOTAL	342	332	2701	201	233	109	200	662	4800
	7.54	6.92	56.27	4.19	4.85	2.27	4.17	13.79	100.00

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

TYPE OF TRAINING

_TRAIN	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
APPRENTICESHIP	362	7.5	362	7.5
ARMED FORCES	332	6.9	694	14.5
OJT	2701	56.3	3395	70.7
EMPLOYER,NOT OJT	201	4.2	3596	74.9
E&T PROGRAM	233	4.9	3829	79.8
OTHER PROGRAM	109	2.3	3938	82.0
PERSONAL	200	4.2	4138	86.2
OTHER	662	13.8	4800	100.0

YEARS IN PROGRAM (BIT STR)

_YEAR	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
00000	662	13.8	662	13.8
00001	618	12.9	1280	26.7
00010	559	11.6	1839	38.3
00011	183	3.8	2022	42.1
00100	463	9.6	2485	51.8
00101	98	2.0	2583	53.8
00110	178	3.7	2761	57.5
00111	66	1.4	2827	58.9
01000	341	7.1	3168	66.0
01001	39	0.8	3207	66.8
01010	67	1.4	3274	68.2
01011	21	0.4	3295	68.6
01100	115	2.4	3410	71.0
01101	25	0.5	3435	71.6
01110	95	2.0	3530	73.5
01111	23	0.5	3553	74.0
10000	575	12.0	4128	86.0
10001	66	1.4	4194	87.4
10010	75	1.6	4269	88.9
10011	24	0.5	4293	89.4
10100	93	1.9	4386	91.4
10101	21	0.4	4407	91.8
10110	49	1.0	4456	92.8
10111	18	0.4	4474	93.2
11000	100	2.1	4574	95.3
11001	27	0.6	4601	95.9
11010	37	0.8	4638	96.6
11011	18	0.4	4656	97.0
11100	52	1.1	4708	98.1
11101	13	0.3	4721	98.4
11110	50	1.0	4771	99.4
11111	29	0.6	4800	100.0

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

UNIVARIATE

VARIABLE=FI111A94 SUM WAGES 1984

MOMENTS

N	4778	SUM WGTS	4778
MEAN	21715	SUM	103754303
STD DEV	26507.9	VARIANCE	7024713a0
SKEWNESS	2.14371	KURTOSIS	3.79816
USS	5.610E+12	CSS	3.357E+12
CV	122.072	STD MEAN	383.489
T:MEAN=0	56.6248	PROB>|T|	0.0001
SGN RANK	3963036	PROB>|S|	0.0001
NUM ^= 0	2951		

QUANTILES(DEF=4)

100% MAX	99998	99%	99998
75% Q3	24600	95%	99997
50% MED	15000	90%	42000
25% Q1	6000	10%	0
0% MIN	0	5%	0
		1%	0
RANGE	99998		
Q3-Q1	18600		
MODE	0		

MISSING VALUE .
COUNT 22
% COUNT/NOBS 0.46

EXTREMES

LOWEST	HIGHEST
0	99998
0	99994
0	99998
0	99998
0	99998

178

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

UNIVARIATE

VARIABLE=FI111084 TOTAL INCOME 1984

MOMENTS

N	4779	SUM WGTS	4778
MEAN	32831.7	SUM	156870046
STD DEV	25956.1	VARIANCE	673536348
SKEWNESS	1.51196	KURTOSIS	1.65912
USS	8.3442+12	CSS	3.1748+12
CV	79.7533	STD MEAN	376.028
T:MEAN=0	87.7717	PROB>|T|	0.0001
SGN RANK	5462736	PROB>|S|	0.0001
NUM ^= 0	4674		

QUANTILES(DEF=4)

100% MAX	99998	99%	99998
75% Q3	39186.3	95%	99997
50% MED	26100	90%	75020
25% Q1	16000	10%	9000
0% MIN	0	5%	4247.5
		1%	0
RANGE	99998		
Q3-Q1	23186.3		
MODE	99998		

EXTREMES

LOWEST	HIGHEST
0	99999
0	99999
0	99999
0	99999
0	99999

MISSING VALUE .
COUNT 22
% COUNT/NOBS 0.46

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

UNIVARIATE

VARIABLE=FI111435 OWN WAGES 1935

MOMENTS

N	4778	SUM WGTS	4778
MEAN	23119.4	SUM	110464598
STD DEV	26746.1	VARIANCE	715355321
SKEWNESS	1.99239	KURTOSIS	3.23265
USS	5.971E+12	CSS	3.417E+12
CV	115.687	STD MEAN	386.935
T:MEAN=0	59.7502	PROB>|T|	0.0001
SGN RANK	4113798	PROB>|S|	0.0001
NUM ^= 0	4056		

QUANTILES(DEF=4)

100% MAX	99998	99%	99958
75% Q3	26500	95%	99997
50% MED	16000	90%	50000
25% Q1	7000	10%	0
0% MIN	0	5%	0
		1%	0
RANGE	99998		
Q3-Q1	19500		
MODE	0		

MISSING VALUE .
COUNT 22
% COUNT/NOBS 0.46

EXTREMES

LOWEST	HIGHEST
0	99998
0	99999
0	99958
0	99968
0	99978

OPERATING ENGINEERS
5TH FOLLOW-UP WEIGHT .GT. ZERO

UNIVARIATE

VARIABLE=FI1110.5 TOTAL INCOME 1985

MOMENTS

N	4778	SUM WGTS	4778
MEAN	35526.9	SUM	169747453
STD DEV	26218.2	VARIANCE	687393917
SKEWNESS	1.2898	KURTOSIS	1.01675
USS	9.314E+12	CSS	3.284E+12
CV	73.7982	STD MEAN	379.297
T:MEAN=0	93.665	PROB>|T|	0.0001
SGN RANK	5490821	PROB>|S|	0.0001
NUM ^= 0	4636		

QUANTILES(DEF=4)

100% MAX	99998	99%	99998
75% Q3	43067.5	95%	99997
50% MED	29500	90%	86000
25% Q1	18000	10%	10000
0% MIN	0	5%	5000
		1%	0
RANGE	99998		
Q3-Q1	25067.5		
MODE	99999		

MISSING VALUE .
COUNT 22
% COUNT/NOBS 0.46

EXTREMES

LOWEST	HIGHEST
0	99998
0	99998
0	99999
0	99999
0	99999